CRPL-F 119

FOR OFFICIAL USE

IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zurich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number									
	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945
December		15	33	53	86	108	114	126	85	38
November		16	38	52	87	112	115	124	83	36
October		17	43	52	90	114	116	119	81	23
September		18	46	54	91	115	117	121	79	22
August		18	49	57	96	111	123	122	77	20
July		20	51	60	101	108	125	116	73	
June	9	21	52	63	103	108	129	112	67	
May	10	22	52	68	102	108	130	109	67	
April	10	24	52	74	101	109	133	107	62	
March	11	27	52	78	103	111	133	105	51	
February	12	29	51	82	103	113	133	90	46	
January	14	30	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina
Decepcion I.

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
Brisbane, Australia
Canberra, Australia
Hobart, Tasmania
Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

British Department of Scientific and Industrial Research, Radio Research Board:
- Falkland Is.
- Inverness, Scotland
- Khartoum, Sudan
- Port Lockroy
- Singapore, British Malaya
- Slough, England

Defence Research Board, Canada:
- Fort Chimo, Canada
- Ottawa, Canada
- Prince Rupert, Canada
- Resolute Bay, Canada
- St. John's, Newfoundland
- Winnipeg, Canada

Danish National Committee of URSI:
- Godhavn, Greenland

French Ministry of National Defense (Section for Scientific Research):
- Tananarive, Madagascar

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
- Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
- De Bilt, Holland

Icelandic Post and Telegraph Administration:
- Reykjavik, Iceland

All India Radio (Government of India), New Delhi, India:
- Bombay, India
- Delhi, India
- Madras, India
- Tiruchy (Tiruchirapalli), India

Indian Council of Scientific and Industrial Research, Radio Research Committee:
- Calcutta, India

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
- Akita, Japan
- Tokyo (Kokubunji), Japan
- Wakkanai, Japan
- Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
- Christchurch, New Zealand
- Rarotonga, Cook Is.

Manila Observatory:
Baguio, P. I.

Research Institute of National Defence, Stockholm, Sweden:
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

United States Army Signal Corps:
Adak, Alaska
Okinawa I.

National Bureau of Standards (Central Radio Propagation Laboratory):
Maui, Hawaii
Narsarssuak, Greenland
Panama Canal Zone
Point Barrow, Alaska
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 through 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during June 1954, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Tables 87a and 87b give for May 1954 the radio propagation quality figures for the North Atlantic area, the relevant CRPL advance and short-term forecasts, a summary geomagnetic activity index and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qa, separately for each 6-hour interval of the Greenwich day, viz., 00-06, 06-12, 12-18, 18-24 hours UT (Universal Time or GCT).
(b) whole-day radio quality indices (beginning October 1952). Each index is a weighted average of the four quarter-day Qa-figures, before rounding off, with half weight given to quality grades 5 and 6. This procedure tends to give whole-day indices suitable for comparison with whole-day advance forecasts which designate whenever possible the days when significant disturbance or unusually quiet conditions will occur.
(c) short-term forecasts, issued by CRPL every six hours (nominally one hour before 00^h, 06^h, 12^h, 18^h UT) and applicable to the period 1 to 13 (especially 1 to 7) hours ahead. Note that new scoring rules have been adopted beginning with October 1952 data.
(d) advance forecasts, issued semiweekly (CRPL-J reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole-day quality indices.
(e) half-day averages of the geomagnetic K indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey.
(f) illustration of the comparison of short-term forecasts with Qa-figures and also with estimates of radio quality based on CRPL observations only.
(g) illustration of the outcome of advance forecasts (1 to 3 or 4 days ahead) and, for comparison, the outcome of a type of "blind" forecast. For the latter the frequency for each quality grade, as determined from the distribution of quality grades in the four most recent months of the current season, is partitioned among the grades observed in the current month in proportion to the frequencies observed in the current month.

These radio propagation quality figures, Qa, are prepared from radio traffic data reported to CRPL by American Telephone and Telegraph Company, Mackay Radio and Telegraph Company, RCA Communications, Inc., Marconi Company, British Admiralty Signal and Radar Establishment, and the following agencies of the U. S. Government:--Coast Guard, Navy, Army Signal Corps, and U. S. Information Agency. The method of calculation, summarized below, is similar to that described in a 1946 report, IRPL-R31, now out of print. Only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality.

The original reports are submitted on various scales and for various time intervals. The observations for each 6-hour interval are averaged on the quality scale of the original reports. These 6-hour indices are then adjusted to the 1 to 9 quality-figure scale by a conversion table prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports originally made on the 1 to 9 quality-figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. The 6-hourly quality figures are (subjectively) weighted means of the reports received for that period. These 6-hourly quality figures replace, beginning January 1953, the half-daily quality figures which formerly appeared in this table. (These forecasts and quality indices are prepared by the North Atlantic Radio Warning Service, the CRPL forecasting center at Ft. Belvoir, Virginia.)

Table 86 gives for May 1954, the radio propagation quality figures for the North Pacific area, the relevant CRPL advance and short-term forecasts, and sundry comparisons, specifically as follows:

(a) radio propagation quality figures, Qp, separately for each of three 9-hour intervals of the Greenwich day, viz., 03-12, 09-18 and 18-03 UT (Universal Time or GCT).
(b) whole-day radio quality indices for each Greenwich day. These are derived from the same basic data as the 9-hour indices, separately reduced.
(c) short-term forecasts, issued daily at 02, 09 and 18 hours UT.
(d) advance forecasts, issued semiweekly (CRPL-Jp reports) and applicable 1 to 3 or 4 days ahead, 4 or 5 to 7 days ahead, and 8 to 25 days ahead. These forecasts are scored against the whole day quality indices.

These radio quality indices, Qp, refer to radio propagation on optimum frequencies over moderately long transmission paths in the North Pacific area. Typical paths are Anchorage (Alaska) to Seattle, or Anchorage to Tokyo. The indices are derived from reports submitted regularly by communications agencies of the U. S. Army and Air Force, and by Aeronautical Radio, Inc. The method of derivation of Qp differs from that of Qa. For Qp, each reported index is converted into a deviation (usually) from the 3-monthly mean for that index, in units of the standard deviation. These deviations are averaged for all reports for a given 9-hour period. The average is then put on the 1 to 9 Q-scale with an assumed standard deviation of 1.25 and assumed means of 5.33, 5.33, and 6.00, respectively, for the 03-12, 09-18 and 18-03 periods, and 5.67 for the whole day period. (These forecasts and quality indices are prepared by the North Pacific Radio Warning Service, the CRPL forecasting center at Anchorage, Alaska.)

These quality figures are, in effect, a consensus of reported radio propagation conditions. The reasons for low quality are not necessarily known and may not be limited to ionospheric storminess. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported, frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

OBSERVATIONS OF THE SOLAR CORONA

Tables 88 through 90 give the observations of the solar corona during June 1954, obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 91 through 93 list the coronal observations obtained at Sacramento Peak, New Mexico, during June 1954, derived by Harvard College Observatory as a part of its performance of a research contract with the Upper Air Research Observatory, Geophysical Research Directorate, Air Force Cambridge Research Center. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 88 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 89 gives similarly the intensities of the first red (6374A) coronal line; and table 90, the intensities of the second red (6702A) coronal line; all observed at Climax in June 1954.

Table 91 gives the intensities of the green (5303A) coronal line; table 92 the intensities of the first red (6374A) coronal line; and table 93, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in June 1954.

The following symbols are used in tables 88 through 93: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

Tables 94 and 95 give details of the Climax, Colorado, and Sacramento Peak, New Mexico, observations, respectively, from January 1954 through June 1954. The first column lists the Greenwich date of observation; the following columns give the threshold or lowest observable intensity of 5303A for each spectrum plate centered at the astronomical position angle indicated; the last two columns indicate the observer and the person responsible for the intensity estimates of the observation. These tables continue the presentation of coronal data in the manner of table 1 of CRPL-1-4 and appear in the F series regularly at intervals of six months.

RELATIVE SUNSPOT NUMBERS

Table 96 lists the daily provisional Zurich relative sunspot number, R_Z, for June 1954, as communicated by the Swiss Federal Observatory. Table 97 contains the daily American relative sunspot number, R_A', for May 1954, as compiled by the Solar Division, American Association of Variable Star Observers.

OBSERVATIONS OF SOLAR FLARES

Table 98 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris) and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 99 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following three criteria: (1) the sum of the eight Kp's; (2) the greatest Kp; and (3) the sum of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g., 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Kp is available from 1937 to date as noted in F108.

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

SUDDEN IONOSPHERE DISTURBANCES

Table 100 shows that no sudden ionosphere disturbances were observed at Ft. Belvoir, Virginia, during the month of June 1954.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) — June 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	(3.0)					3.1	(3.2)
01	270	2.8					3.8	3.2
02	270	(2.4)					2.1	(3.2)
03	280	(2.1)					3.0	(3.3)
04	280	(2.1)					2.8	(3.3)
05	250	2.9	230	---			2.6	3.35
06	340	3.7	220	3.3	110	2.0	3.4	3.2
07	340	4.2	220	3.6	110	2.4	4.6	3.2
08	380	4.4	220	3.8	110	2.7	4.4	3.0
09	350	4.8	210	4.0	100	2.9	4.9	3.1
10	360	4.7	200	4.1	100	3.0	4.4	3.0
11	360	4.8	190	4.2	100	(3.1)	4.8	3.0
12	370	4.9	200	4.2	100	3.2	4.8	3.0
13	390	4.7	200	4.2	100	3.2	4.9	3.0
14	380	4.7	200	4.1	100	3.2	4.3	3.0
15	380	4.7	210	4.0	100	3.0	4.6	3.0
16	370	4.7	220	3.9	110	2.8	4.0	3.0
17	330	4.7	230	3.7	110	2.6	4.6	3.1
18	300	5.0	220	3.3	110	2.2	5.2	3.1
19	260	5.2	---	---			5.1	3.2
20	240	5.5					4.6	3.2
21	240	4.8					4.9	3.2
22	250	3.8					4.0	3.1
23	270	(3.4)					3.9	(3.2)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Adak, Alaska (51.9°N, 176.6°W) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0						3.0
01	270	3.0						3.0
02	280	3.0						3.0
03	280	3.0						3.0
04	270	3.0					2.0	3.0
05	270	3.2	240	2.7	120	1.4	1.5	3.05
06	310	3.9	240	3.1	120	1.8		3.15
07	330	4.1	230	3.5	110	2.2		3.2
08	360	4.3	220	3.8	110	2.5		3.0
09	340	4.6	220	3.9	110	2.7		3.1
10	340	4.8	220	4.0	110	2.8	2.8	3.1
11	350	4.8	220	4.1	110	2.9	4.3	3.1
12	350	4.7	210	4.1	110	2.9	3.8	3.1
13	320	5.0	210	4.0	110	2.8	3.0	3.2
14	330	5.0	220	4.0	110	2.7	3.7	3.2
15	310	4.8	230	3.9	110	2.6	2.5	3.2
16	290	4.8	240	3.7	110	2.4		3.3
17	270	4.7	240	3.4	120	2.0	2.2	3.3
18	250	4.6	240	---	140	1.8	2.2	3.3
19	250	4.9					2.3	3.2
20	240	5.0					2.4	3.1
21	240	4.7					2.6	3.2
22	240	3.8						3.2
23	250	3.4						3.1

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 3

Maui, Hawaii (20.8°N, 156.5°W) — April 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6					2.2	2.9
01	280	3.7					2.2	3.0
02	260	3.8					2.0	3.3
03	250	3.2					2.0	3.2
04	280	2.8					1.8	3.0
05	270	2.6					1.8	3.1
06	260	3.2	---	---	---	---	1.9	3.2
07	250	5.3	240	---	120	2.0	3.2	3.4
08	280	5.8	230	---	120	2.6	4.8	3.2
09	320	6.1	220	4.3	110	2.9	5.0	3.0
10	370	6.7	220	4.4	110	3.1	4.9	2.7
11	390	8.0	210	4.4	110	3.2	4.7	2.7
12	360	9.3	210	4.4	110	3.3	4.9	2.8
13	330	10.8	220	4.4	110	3.3	5.4	3.0
14	300	11.1	200	4.4	110	3.2	5.0	3.1
15	300	11.2	250	4.3	120	3.1	5.6	3.1
16	280	10.8	250	4.1	120	2.9	5.4	3.15
17	280	10.3	240	3.9	120	2.5	4.9	3.2
18	260	10.0	250	---	130	1.9	4.6	3.3
19	240	9.4					3.8	3.4
20	230	6.0					4.0	3.3
21	260	4.5					3.9	3.0
22	300	4.0					3.0	2.8
23	310	3.6					2.4	2.8

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 4

Upsala, Sweden (59.8°N, 17.6°E) — March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(350)	(1.7)						(2.7)
01	350	(1.7)						2.7
02	350	1.9						2.8
03	335	1.7						2.8
04	310	1.7						(2.75)
05	300	1.8						2.8
06	260	2.4	---	---	---	---		3.1
07	240	3.3	230	---	135	1.6		3.3
08	(305)	3.8	225	3.2	120	2.0		3.2
09	330	4.0	220	3.5	115	2.2		3.1
10	320	4.2	220	3.7	110	2.2	2.2	3.1
11	305	4.4	215	3.8	110	2.4		3.2
12	305	4.5	210	3.8	110	2.4		3.2
13	295	4.7	210	3.7	110	2.4		3.2
14	285	4.7	220	3.6	110	2.3		3.3
15	265	4.7	225	3.4	115	2.2		3.3
16	245	4.5	235	3.0	115	2.0		3.3
17	240	4.3	245	(2.9)	---	1.7		3.3
18	235	4.1	---	---				3.2
19	235	3.6						3.1
20	245	3.0						3.0
21	260	2.1						3.0
22	305	1.8						2.9
23	(315)	(1.8)						(2.8)

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 5

Okinawa I. (26.3°N, 127.8°E) — March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.6						3.1
01	250	3.4						3.3
02	230	3.3						3.4
03	210	3.2						3.6
04	210	2.5						(3.6)
05	(240)	(2.7)						---
06	<240	3.2						3.4
07	230	5.2	220	---	110	---	2.5	3.7
08	240	5.8	210	---	100	---	3.1	3.5
09	260	6.5	210	4.2	100	3.0	3.9	3.4
10	290	7.4	210	4.2	100	3.0	4.6	3.2
11	310	8.5	200	4.3	100	3.2	4.5	3.2
12	290	10.1	200	4.4	100	3.3	4.7	3.2
13	260	10.8	200	4.4	100	3.3	4.6	3.4
14	250	10.5	210	4.3	110	3.2	4.5	3.4
15	250	10.0	210	4.1	100	3.0	4.6	3.4
16	240	8.6	210	---	110	2.8	4.0	3.5
17	220	7.6	220	---	110	---	3.7	3.6
18	210	6.2					2.6	3.6
19	220	4.6						3.4
20	230	3.8						3.3
21	260	3.5						3.0
22	280	3.6						3.0
23	300	3.5						3.0

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 6

Panama Canal Zone (9.4°N, 79.9°W) — March 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.3						3.1
01	240	3.5						3.4
02	240	3.0					1.9	3.25
03	220	2.6					2.5	3.4
04	260	2.2					1.7	3.1
05	270	2.1					3.0	3.0
06	300	2.4					2.5	3.0
07	250	4.5	---	---	130	1.7	3.2	3.4
08	280	5.9	240	(4.0)	110	2.5	3.8	3.3
09	300	6.7	210	4.3	110	2.9	3.7	3.1
10	330	7.4	210	4.3	110	3.1	3.9	3.0
11	340	8.6	200	4.4	110	3.3	3.9	2.9
12	320	9.2	210	4.4	110	3.4	3.8	3.0
13	310	9.7	210	4.4	110	3.4	4.2	3.1
14	290	10.3	230	4.3	110	3.3	4.3	3.1
15	290	10.3	220	4.3	110	3.1	4.2	3.2
16	280	10.1	230	4.1	110	2.9	4.3	3.2
17	270	9.4	240	(3.8)	110	2.4	3.8	3.3
18	240	9.2	---	---	---	---	3.3	3.4
19	220	7.2					3.1	3.4
20	220	5.2					2.5	3.3
21	240	3.9					2.5	3.2
22	270	3.4					1.9	3.0
23	300	3.4						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 7

Resolute Bay, Canada (74.7°N, 94.9°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	2.4						3.1
01	250	1.9						3.2
02	280	2.0						3.2
03	250	2.0						3.15
04	270	1.9						3.1
05	280	2.0					3.0	3.1
06	270	2.0			---	---	3.0	3.1
07	260	2.3			---	---	3.0	3.2
08	250	2.4			---	---	1.6	3.2
09	250	2.9			110	(1.2)		3.2
10	250	3.0	---	---	100	1.4		3.2
11	250	3.0	---	---	110	1.4		3.25
12	250	3.1	230	---	100	1.5		3.2
13	250	3.0	250	---	100	1.7		3.3
14	250	3.0	260	---	100	1.5		3.2
15	260	3.0	---	---	110	1.2		3.2
16	250	3.0	---	---	120	1.2		3.2
17	240	3.0	---	---	130	1.0		3.2
18	240	3.0	---	---	---	---		3.15
19	240	3.0						3.1
20	240	2.9						3.2
21	250	2.8						3.1
22	250	2.8						3.1
23	250	2.3						3.2

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 8

Point Barrow, Alaska (71.3°N, 156.8°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.4					7.1	(3.2)
01	(300)	(2.6)					6.8	(3.1)
02	(340)	(2.6)					6.4	---
03	(320)	(2.3)					4.9	(3.2)
04	(280)	(2.5)					3.7	(3.25)
05	(310)	(2.5)					4.0	(3.2)
06	(340)	(2.6)					4.5	(3.1)
07	---	---					4.6	---
08	(320)	(3.4)					4.8	---
09	(310)	(2.8)					4.5	---
10	(270)	(3.2)					4.0	(3.3)
11	(290)	3.4					3.4	3.3
12	280	3.8					1.7	3.4
13	280	3.9						3.3
14	260	4.0						3.3
15	260	4.1						3.4
16	260	3.8					1.8	3.3
17	290	3.4					2.4	3.3
18	300	2.6					2.6	3.2
19	300	2.1					3.2	(3.2)
20	(320)	(2.7)					3.6	---
21	320	3.0					4.4	(3.3)
22	300	2.7					4.8	(3.25)
23	320	(2.5)					6.6	(3.2)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 9

Reykjavik, Iceland (64.1°N, 21.8°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.8	---
01	---	---					4.3	---
02	---	---					5.4	---
03	---	---					4.2	---
04	---	---					4.5	---
05	---	---					4.0	---
06	---	---					4.2	---
07	---	---					3.6	---
08	---	---						---
09	260	3.1			---	---		3.3
10	240	3.6	---	---	---	---		3.35
11	250	3.9	230	---	---	---		3.45
12	250	4.0	220	---	---	---		3.4
13	250	4.2	230	---	---	---		3.4
14	260	4.1	230	---	---	---		3.4
15	250	4.0	230	---	---	---		3.4
16	260	3.5						3.3
17	260	3.2					2.4	3.2
18	260	(2.9)					4.0	(3.2)
19	---	---					4.6	---
20	---	---					5.4	---
21	---	---					5.0	---
22	---	---					5.6	---
23	---	---					5.0	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 10

Narsarsuak, Greenland (61.2°N, 45.4°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					6.3	---
01	---	---					5.4	---
02	---	---					5.2	---
03	---	---					5.3	---
04	---	---					5.0	---
05	---	---					5.2	---
06	---	---					4.5	---
07	---	---					3.1	---
08	(250)	2.8			---	---		(3.5)
09	240	3.5	220	---	---	---		3.5
10	240	3.9	(220)	---	---	---		3.5
11	270	4.2	220	---	---	---		3.45
12	300	4.1	230	3.4	120	2.2		3.3
13	300	4.2	220	3.4	120	2.2		3.3
14	260	4.0	220	3.4	---	---		3.4
15	260	3.8	(230)	---	---	---		3.3
16	260	3.6	---	---	---	---	2.6	3.4
17	(270)	(3.4)			---	---	4.3	3.2
18	(300)	(2.7)					4.7	(3.1)
19	(270)	(2.2)					6.5	(3.4)
20	---	---					8.2	---
21	---	---					7.6	---
22	---	---					7.0	---
23	---	---					7.2	---

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 11

Fort Chimo, Canada (58.1°N, 68.3°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---			---	---	5.4	---
01	---	---			---	---	4.2	---
02	---	---			100	2.7	3.9	---
03	---	---			100	3.4	3.6	---
04	---	---			100	4.0	4.2	---
05	---	---			100	(4.1)	4.4	---
06	---	---			---	---	4.2	---
07	---	---			---	---	3.4	---
08	240	(3.3)	---	---	---	---		(3.5)
09	270	3.8	---	---	---	---		3.4
10	300	3.9	200	3.2	---	---		(3.2)
11	320	4.1	220	3.4	---	---		(3.3)
12	270	4.4	220	3.4	---	2.4		3.5
13	290	4.6	200	3.3	110	2.5		3.3
14	290	4.3	210	3.2	110	2.3		3.3
15	270	4.0	230	3.0	110	2.0	2.4	(3.3)
16	260	3.4	---	---	110	2.0	2.6	(3.2)
17	250	2.8			100	2.6	3.0	---
18	290	2.6			100	2.6	6.2	---
19	230	2.8			100	3.0	6.8	---
20	250	(2.6)			---	---	6.1	---
21	---	(2.4)			---	---	7.0	---
22	---	---			---	---	5.9	---
23	---	---			---	---	6.2	---

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconde.

Table 12

Prince Rupert, Canada (54.3°N, 130.3°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	1.5						---
01	280	1.4					1.0	---
02	290	1.5					1.0	---
03	280	1.5					2.0	---
04	300	1.7					2.1	---
05	300	1.5					2.3	---
06	300	1.5					2.0	---
07	290	1.7					1.2	(3.0)
08	250	2.7			110	1.6	1.8	3.3
09	230	3.6	---	---	110	1.8		3.4
10	260	4.0	210	3.3	110	2.2		3.4
11	280	4.6	210	3.6	110	2.4		3.4
12	270	5.3	210	3.7	110	2.5		3.4
13	260	5.2	210	3.6	110	2.6		3.5
14	260	5.2	210	3.6	110	2.6		3.4
15	260	5.2	220	3.4	110	2.4		3.4
16	230	5.0	220	---	110	2.1		3.5
17	230	4.8	---	---	120	1.8		3.5
18	220	4.0			130	---		3.4
19	230	3.0						3.35
20	230	2.0						3.3
21	250	1.7						---
22	280	1.6						---
23	280	1.3						---

Time: 120.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 13

De Bilt, Holland (52.1°N, 5.2°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	2.5						3.0
01	<280	2.6						3.0
02	<280	2.6						3.1
03	270	2.4						3.1
04	<280	2.0						3.05
05	<300	1.8						(3.2)
06	<280	1.9						3.2
07	240	3.3						3.5
08	240	4.0	230	2.6	130	1.9		3.6
09	240	4.4	230	3.2	120	2.2		3.5
10	250	4.9	230	3.5	120	2.3		3.5
11	260	5.1	240	3.7	120	2.4		3.6
12	260	5.0	230	3.7	120	2.5		3.55
13	265	5.1	230	3.6	125	2.5		3.5
14	260	5.1	230	3.5	130	2.4		3.6
15	240	5.0	240	3.2	130	2.1		3.6
16	240	4.6	240	2.4	---	1.8		3.5
17	230	4.0	---	---				3.4
18	250	3.4						3.2
19	250	3.4						3.3
20	(240)	2.7						3.2
21	<270	2.5						3.1
22	<280	2.4						3.1
23	<280	2.5						3.05

Time: 0.0°.
Sweep: 1.4 Mc to 11.2 Mc in 6 minutes, automatic operation.

Table 14

Lindau/Harz, Germany (51.6°N, 10.1°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.7					2.1	3.2
01	260	2.6					2.0	3.7
02	250	2.6					2.0	3.2
03	250	2.5					2.0	3.2
04	250	2.4					2.0	3.2
05	250	2.0					2.0	3.3
06	260	1.8					2.2	3.4
07	250	2.2					2.2	3.4
08	220	3.8	210		---	---	2.2	3.65
09	220	4.6	210		120	2.0	2.4	3.7
10	240	4.8	210		110	2.2	3.1	3.7
11	250	5.7	210		110	2.4	3.1	3.6
12	250	5.4	210		110	2.6	3.3	3.6
13	240	5.7	210		110	2.6	3.3	3.65
14	250	5.2	205		110	2.4	3.2	3.6
15	240	5.3	220		110	2.3	3.1	3.6
16	230	5.0	220		120	1.9	2.9	3.6
17	220	4.6	---		---	---	2.4	3.6
18	220	4.1					2.2	3.5
19	235	3.5					2.1	3.3
20	230	3.4					1.9	3.4
21	250	2.6					2.0	3.3
22	275	2.6					2.0	3.2
23	270	2.6					2.0	3.2

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 15

Winnipeg, Canada (49.9°N, 97.4°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	440	2.3						(3.0)
01	380	(2.1)					3.4	---
02	340	(2.4)					3.2	(3.2)
03	340	(2.5)					3.4	---
04	340	(2.6)					3.4	---
05	320	(2.2)					3.6	---
06	---	---					3.2	---
07	300	2.2					2.7	---
08	240	3.2	---	---	140	1.8		3.3
09	240	4.0	220	---	120	2.0		3.4
10	260	4.4	210	3.4	120	2.3		3.4
11	300	4.8	220	3.7	120	2.5		3.3
12	280	5.2	220	3.8	120	2.7		3.3
13	270	5.2	210	3.8	120	2.7		3.4
14	280	5.2	220	3.7	120	2.6		3.35
15	270	5.3	230	3.5	120	2.4		3.3
16	250	5.1	230	---	130	2.1		3.35
17	230	4.9	240	---				3.4
18	230	4.2						3.3
19	240	3.6						3.3
20	260	2.4						3.2
21	290	1.9						3.0
22	(380)	1.8						(3.0)
23	400	(2.1)						---

Time: 90.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 16 seconds.

Table 16

St. John's, Newfoundland (47.6°N, 52.7°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	1.9					2.8	(2.9)
01	370	1.8					2.7	(2.9)
02	(380)	(1.8)					3.0	---
03	(300)	(1.7)					2.9	---
04	(300)	1.6					3.0	(3.0)
05	(300)	(1.6)					3.0	2.95
06	300	1.8			---	E	2.8	3.0
07	240	3.1	230	2.2	120	1.7	2.1	3.3
08	250	3.9	220	2.9	120	2.2		3.4
09	270	4.2	200	3.5	120	2.4		3.5
10	290	4.3	200	3.6	120	2.7		3.4
11	300	4.5	210	3.8	120	2.7		3.4
12	320	4.8	200	3.8	120	2.8		3.25
13	300	4.9	210	3.7	120	2.7		3.35
14	300	4.8	220	3.6	120	2.6		3.35
15	280	4.8	230	3.4	130	2.3		3.4
16	260	4.6	230	2.9	140	1.9		3.45
17	240	4.3	---	---	---	E		3.35
18	240	3.8			---	---		3.15
19	250	2.9						3.1
20	270	2.3						3.0
21	300	2.0						3.0
22	320	1.9						2.9
23	340	1.9						2.9

Time: 60.0°W.
Sweep: 0.8 Mc to 10.0 Mc in 18 seconds.

Table 17

Ottawa, Canada (45.4°N, 75.9°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	1.9						---
01	(340)	1.8					2.4	---
02	(340)	(2.1)					3.0	---
03	(340)	(2.0)					3.2	(3.3)
04	320	2.0					3.0	(3.2)
05	300	2.0					2.9	---
06	300	2.1					3.0	(3.0)
07	260	2.5			---	---		3.3
08	240	3.8	220	---	120	2.0		3.5
09	250	4.2	210	3.3	120	2.4		3.5
10	280	4.5	210	3.7	120	2.6		3.5
11	300	4.9	200	3.8	120	2.7		3.5
12	300	5.0	210	3.8	120	2.8		3.4
13	290	5.0	220	3.9	120	2.8		3.4
14	280	5.0	210	3.8	120	2.7		3.4
15	280	5.0	220	3.6	120	2.6		3.4
16	260	5.0	230	3.3	120	2.2		3.5
17	240	4.9	240	---	120	E		3.4
18	240	4.2						3.5
19	240	3.4						3.3
20	260	2.6						3.2
21	300	2.0						3.1
22	340	2.0						(3.1)
23	350	1.9						(3.1)

Time: 75.0°W.
Sweep: 1.0 Mc to 10.0 Mc in 15 seconds.

Table 18

Wakkanai, Japan (45.4°N, 141.7°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4					2.2	2.9
01	260	3.2					2.3	3.0
02	270	3.0					2.3	2.9
03	260	3.0					2.4	2.9
04	260	2.8					2.2	2.9
05	240	2.8					2.0	3.1
06	250	2.7						3.1
07	230	3.8	---	---	---	---	1.8	3.4
08	240	5.0	240	3.3	130	2.2	2.4	3.4
09	250	5.5	220	3.6	120	2.4		3.4
10	260	5.7	230	3.8	120	2.6		3.3
11	270	6.4	240	3.9	120	2.7		3.3
12	260	6.2	230	3.9	120	2.7		3.3
13	260	6.0	230	3.8	120	2.7		3.4
14	260	5.5	230	3.7	120	2.5		3.4
15	250	5.5	230	3.3	120	2.3		3.4
16	240	5.0	230	2.8	130	1.9		3.4
17	230	4.6						3.3
18	240	3.4					1.7	3.2
19	260	3.2					2.2	3.0
20	270	3.1					1.8	3.0
21	280	3.2						2.9
22	280	3.3						2.9
23	300	3.4						2.9

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 19

Akita, Japan (39.7°N, 140.1°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2					2.3	2.9
01	270	3.1					2.3	2.9
02	250	3.0					2.3	3.1
03	250	3.0					2.3	3.0
04	250	2.8					2.2	3.1
05	240	2.5					2.2	3.0
06	250	2.4					1.8	3.1
07	220	4.0	230	---	---	1.6	2.0	3.5
08	240	5.1	230	2.8	120	2.2	3.0	3.55
09	250	5.6	220	3.6	110	2.5	3.4	3.5
10	260	5.6	220	3.9	110	2.7	3.5	3.4
11	260	6.6	220	4.0	110	2.8	3.5	3.4
12	260	6.8	220	4.0	110	2.9	3.5	3.45
13	250	6.1	220	4.0	110	2.8	3.5	3.5
14	250	5.7	220	3.7	110	2.7	3.2	3.5
15	240	5.5	220	3.5	110	2.5	2.6	3.5
16	240	5.4	230	2.7	120	2.1	2.6	3.6
17	220	4.7	---	---	---	---	2.3	3.5
18	220	3.6					2.2	3.2
19	240	3.2					2.2	3.2
20	250	3.2					1.9	3.1
21	250	3.0					2.2	3.0
22	290	3.2					2.2	2.85
23	280	3.2					2.0	2.9

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 20

Tokyo, Japan (35.7°N, 139.5°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.1					2.5	2.9
01	260	3.0					2.0	3.05
02	250	3.0					2.3	3.1
03	250	2.9					2.0	3.1
04	240	2.7					2.0	3.2
05	260	2.4					2.4	3.0
06	250	2.3					1.9	3.1
07	230	4.3	---	---	130	1.7	2.5	3.4
08	240	5.3	230	3.5	120	2.2	3.0	3.4
09	250	5.8	230	3.8	110	2.5	3.3	3.5
10	260	6.1	220	4.0	110	2.8	3.4	3.4
11	260	6.5	210	4.2	110	3.0	3.5	3.3
12	260	7.0	220	4.2	110	3.0	3.4	3.4
13	260	6.6	220	4.1	110	3.0	3.2	3.4
14	250	6.0	220	4.0	110	2.8	3.5	3.5
15	250	5.6	220	3.7	120	2.6	3.3	3.4
16	230	5.5	220	3.2	120	2.2	3.0	3.5
17	220	5.0	220	---	120	1.6	2.5	3.5
18	220	3.7					2.5	3.4
19	230	3.2					2.3	3.1
20	250	3.2					2.3	3.2
21	250	3.0					2.0	3.1
22	270	3.0					2.0	3.0
23	280	3.0					2.3	3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 in 2 minutes.

Table 21

Yamagawa, Japan (31.2°N, 130.6°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.8						2.9
01	300	3.0						2.9
02	290	2.9						3.0
03	300	2.8						2.9
04	260	2.7						3.1
05	270	2.5						3.1
06	300	2.2						2.9
07	260	3.3			---	---		3.2
08	250	5.0	---	---	130	2.0		3.4
09	270	5.9	250	3.7	120	2.4		3.3
10	280	6.4	250	4.0	120	2.6	3.2	3.3
11	290	7.4	240	4.1	110	2.8	3.8	3.2
12	290	7.3	240	4.2	110	3.0	3.6	3.2
13	300	7.5	250	4.2	110	3.0	3.6	3.2
14	290	7.0	240	4.2	110	3.0		3.3
15	280	6.6	240	4.0	110	2.8		3.3
16	260	6.2	230	3.7	120	2.5	2.6	3.4
17	250	5.6	240	---	120	2.1		3.45
18	240	5.0					2.0	3.4
19	240	3.6						3.3
20	260	3.2						3.05
21	270	3.1						3.05
22	260	2.8						3.0
23	300	2.6						2.9

Time: 135.0°E.
Sweep: 0.8 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 22

Baguio, P. I. (16.4°N, 120.6°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.8					1.6	3.1
01	250	3.4						3.2
02	230	3.5						3.4
03	210	2.9					1.8	3.4
04	210	2.1					2.0	3.4
05	230	1.7					1.8	3.3
06	280	1.9					2.0	3.0
07	230	4.8			120	1.8	2.6	3.5
08	260	6.1	230	---	110	2.4	2.9	3.5
09	300	6.9	210	---	110	2.8	3.9	3.2
10	320	8.1	200	4.1	110	3.0	4.5	3.0
11	320	8.8	200	4.2	110	3.1	4.5	2.8
12	330	9.1	200	4.2	100	3.2	4.8	2.6
13	330	9.0	200	4.2	100	3.1	4.5	2.6
14	320	9.0	200	---	100	3.0	4.4	2.8
15	300	9.3	200	---	100	2.8	4.0	3.0
16	270	9.6	210	---	110	2.6	3.8	3.2
17	230	9.2	---	---	110	2.1	3.3	3.4
18	220	8.9					2.6	3.4
19	210	7.6					2.0	3.3
20	210	6.7					2.4	3.3
21	220	6.0					2.8	3.2
22	230	5.0					3.5	3.3
23	220	4.7					2.0	3.2

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 23

Watheroo, W. Australia (30.3°S, 115.9°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.6					2.7	2.9
01	270	3.5					3.2	3.0
02	270	3.4					3.6	3.1
03	(250)	3.4					3.4	3.2
04	260	3.0					3.2	3.0
05	260	2.8					2.5	3.0
06	(260)	3.4	---	---		1.6	2.8	3.2
07	290	4.0	240	3.5		2.3	3.5	3.3
08	(300)	(4.9)	240	3.8		2.6	3.5	(3.3)
09	---	---	220	4.0		2.9	3.8	---
10	---	---	---	---		3.2	3.9	---
11	---	(6.3)	---	---		3.3	4.0	---
12	---	(5.8)	200	---		3.3	3.9	---
13	---	(5.6)	---	---		3.3	4.0	---
14	(330)	(6.4)	---	---		3.3	4.3	(3.0)
15	(320)	(6.0)	---	4.0		3.2	3.8	(3.1)
16	(290)	(6.1)	240	4.0		3.0	3.8	(3.2)
17	280	5.7	230	3.8		2.6	3.9	3.2
18	280	5.2	250	3.3		2.2	3.5	3.3
19	250	(4.3)					2.9	(3.15)
20	(250)	4.1					3.2	3.15
21	260	3.8					2.8	3.1
22	270	3.5					2.4	2.9
23	280	3.5					2.6	2.9

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes.

Table 24

Buenos Aires, Argentina (34.5°S, 58.5°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.8					2.9	3.0
01	300	4.7					3.6	3.0
02	280	4.3					3.8	3.1
03	280	4.2					3.6	3.2
04	270	3.7					2.9	3.1
05	270	3.6					1.4	3.1
06	230	4.6	---	---	120	2.1	2.9	3.5
07	250	5.3	230	---	---	---	3.5	3.4
08	270	5.3	220	---	100	2.8	3.8	3.4
09	290	5.7	200	4.2	100	3.0	3.8	3.3
10	320	5.8	210	4.2	---	---	4.0	3.1
11	330	6.7	210	4.4	100	3.3	4.2	3.0
12	320	7.7	210	4.4	---	---	4.0	3.0
13	300	8.2	200	4.3	---	---	3.8	3.1
14	310	8.6	---	---			3.5	3.1
15	300	9.4	210	---				3.2
16	280	9.7	220	---				3.4
17	250	9.7	240	---				3.5
18	240	7.4	230	---				3.5
19	220	(6.9)						(3.4)
20	(240)	(6.4)						(3.2)
21	260	5.4						3.1
22	280	5.0						3.0
23	300	5.0						3.0

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 25

Christchurch, New Zealand (43.6°S, 172.8°E) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.3					2.8	2.9
01	280	2.8					2.8	2.9
02	280	2.8					2.6	3.0
03	270	2.5					2.6	3.0
04	270	2.3					2.4	3.0
05	270	2.6	---	---		1.2	2.4	3.05
06	260	3.5	240	2.6		1.8		3.3
07	280	3.8	230	3.5		2.2	3.6	3.4
08	360	4.3	230	3.8		2.5	4.2	3.1
09	320	5.1	230	4.0		2.8	4.0	3.3
10	310	5.5	220	4.2		2.9	5.6	3.2
11	320	5.3	200	4.2		3.0	4.8	3.15
12	330	5.4	200	4.3		3.1	4.5	3.2
13	330	5.5	200	4.3		3.1	4.2	3.2
14	320	5.3	220	4.2		3.0	4.8	3.3
15	320	5.2	220	4.2		3.0	4.3	3.2
16	320	5.1	220	3.9		2.7		3.2
17	290	5.0	240	3.7		2.3		3.2
18	280	5.2	250	3.2		1.9	3.6	3.2
19	250	5.3	250	---		---	3.4	3.2
20	250	5.6				---	3.0	3.1
21	250	5.2					3.8	3.1
22	(260)	4.4					4.3	3.05
23	270	3.9					3.4	3.0

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 26

Decepcion I. (63.0°S, 60.7°W) February 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.9	190	3.1				(3.3)
01	290	4.6	220	2.6			2.0	(3.1)
02	300	4.5	180	2.6			2.0	(3.2)
03	290	4.1	200	2.6			2.0	(3.2)
04	280	4.8	200	2.8				(3.2)
05	280	4.8	210	2.8			2.5	(3.2)
06	280	4.9	---	---			3.6	(3.3)
07	---	(4.8)	---	---			4.6	(3.2)
08	(240)	(4.8)	---	---			5.0	(3.4)
09	---	---	---	---			5.2	---
10	---	---	---	---			5.2	---
11	---	---	---	---			5.2	---
12	---	---	---	---			5.4	---
13	---	---	---	---			5.3	---
14	---	---	---	---			4.9	
15	---	---	---	---			4.6	---
16	(250)	(4.9)	---	---			4.8	(3.6)
17	(250)	(4.2)	---	---			5.0	(3.5)
18	(260)	(4.8)	---	---			4.8	(3.45)
19	280	5.3	---	---			4.2	(3.4)
20	270	5.2	---	---			3.6	(3.4)
21	280	5.2	200	3.6			2.0	(3.3)
22	270	5.1	220	3.6				(3.3)
23	280	5.0	200	3.6				(3.35)

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 27

Lulea, Sweden (65.6°N, 22.1°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	345	(2.4)						
01								
02	295	2.2					2.5	
03								
04	300	2.0					2.1	
05								
06	---	(1.8)						
07								
08	250	2.5						
09								
10	220	4.0			---	1.7	2.0	
11								
12	220	4.8	---	---	---	1.9	2.0	
13								
14	215	4.0			---	1.7		
15								
16	230	2.8						
17								
18	275	---						
19								
20	---	---						
21								
22	300	(2.0)						
23								

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 28

Reykjavik, Iceland (64.1°N, 21.8°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.0	---
01	---	---					4.5	---
02	(300)	---					4.9	---
03	(310)	---					4.2	---
04	(300)	(2.8)					4.9	(3.0)
05	(300)	(2.5)					3.9	---
06	---	---					3.7	---
07	---	---					(3.8)	---
08	---	---					(4.2)	---
09	250	2.7						3.4
10	230	3.5						3.4
11	220	4.1						3.5
12	230	4.6						3.5
13	220	4.7						3.5
14	230	4.6						3.5
15	220	4.2						3.4
16	230	(4.0)						3.3
17	250	(2.6)						(3.3)
18	(240)	---					4.0	---
19	---	---					4.2	---
20	---	---					4.2	---
21	---	---					4.3	---
22	---	---					4.8	---
23	---	---					4.2	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 29

Nararssuak, Greenland (61.2°N, 45.4°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					5.0	---
01	---	---					4.8	---
02	---	---					5.2	---
03	---	---					5.3	---
04	---	---					5.2	---
05	---	---					5.0	---
06	(280)	(2.0)					4.7	(3.3)
07	(280)	(1.8)					4.4	---
08	260	2.1			---	---	4.6	3.4
09	230	3.3	---	---	---	---	2.3	3.6
10	220	4.2	210	---	---	---		3.7
11	220	4.6	200	---	120	---	2.2	3.7
12	220	4.8	210	---	(120)	2.0		3.7
13	230	5.0	210	---	120	1.9	2.2	3.6
14	230	4.7	230	---	---	---		3.6
15	230	4.4	---	---	---	---	2.2	3.5
16	230	3.4	---	---			3.5	3.4
17	(270)	(2.9)					3.9	(3.2)
18	(250)	(2.2)					4.0	(3.3)
19	---	---					4.4	---
20	---	---					4.5	---
21	---	---					5.4	---
22	---	---					6.6	---
23	---	---					5.6	---

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 30*

Invernesse, Scotland (57.4°N, 4.2°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	(1.8)						(2.9)
01	280	(1.7)						(3.0)
02	295	(1.8)						2.9
03	290	(1.7)						2.9
04	300	1.5						3.0
05	285	(1.4)						(3.1)
06	270	(1.5)						3.1
07	295	1.5					2.2	(2.9)
08	270	1.9						3.1
09	220	3.6					2.2	3.6
10	220	4.4				1.8	2.0	3.7
11	220	4.8	220	(2.8)	145	2.0	2.2	3.7
12	225	5.1	215	3.1	135	2.1	2.4	3.7
13	220	5.4	215	(3.1)	(135)	(2.1)	2.3	3.7
14	225	5.0	(215)		145	1.9	2.3	3.7
15	220	4.8			(150)	1.8		3.7
16	210	4.2						3.6
17	225	3.8						3.4
18	240	2.7						3.4
19	275	2.0						3.2
20	300	(1.7)						(3.0)
21	295	(1.7)						(3.1)
22	310	(1.7)						(2.9)
23	295	(1.7)						(3.0)

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 31

Adak, Alaska (51.9°N, 176.6°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		2.7						
01		2.6						
02		2.5						
03		2.5						
04		2.5						
05		2.6					1.9	
06		2.5						
07		2.4						
08		4.1					2.4	
09		5.1		---		---		
10		5.4		---		2.2		
11		5.6		---		2.3		
12		5.7		---		2.3		
13		5.5		---		2.3		
14		5.4		---		2.1		
15		5.0				---	1.8	
16		4.3					2.0	
17		3.3						
18		2.3					2.1	
19		2.0						
20		2.1						
21		2.1						
22		2.6						
23		2.6						

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 32

Lindau/Harz, Germany (51.6°N, 10.1°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0					2.3	3.25
01	250	3.2					2.2	3.2
02	250	3.1					2.3	3.2
03	250	3.0					2.2	3.2
04	240	2.6					2.3	3.2
05	240	2.3					2.3	3.3
06	240	2.2					2.2	3.4
07	250	2.0					2.2	3.5
08	220	3.0					2.2	3.5
09	275	4.6			---	E	2.5	3.7
10	220	5.1			120	2.7	3.0	3.7
11	220	5.5			115	2.2	3.4	3.7
12	225	5.5			115	2.4	3.5	3.7
13	220	5.4			115	2.4	3.6	3.7
14	220	5.2			115	2.2	3.4	3.7
15	220	5.2			120	2.0	3.7	3.7
16	210	4.6			---	E	2.9	3.7
17	205	4.0					2.5	3.6
18	220	3.2					2.4	3.5
19	240	2.6					2.4	3.45
20	240	2.6					2.4	3.3
21	260	2.6					2.0	3.3
22	255	2.8					2.2	3.3
23	250	2.8						3.3

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 33*

Slough, England (51.5°N, 0.6°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.0					2.5	3.0
01	260	3.0					2.6	3.0
02	255	3.0					2.6	3.05
03	255	3.0					2.6	3.0
04	255	2.5					2.6	3.05
05	250	2.4					2.5	3.15
06	250	2.2					2.4	3.2
07	255	2.0					2.6	3.15
08	230	3.7			145	1.5	3.1	3.5
09	220	4.8			130	1.9	3.2	3.55
10	230	5.4	220	3.0	125	2.2	3.4	3.6
11	230	5.5	220	3.3	125	2.3	3.7	3.65
12	230	5.5	215	3.4	125	2.4	3.7	3.65
13	230	5.5	210	3.3	130	2.4	3.7	3.6
14	235	5.3	220	3.2	130	2.2	3.6	3.6
15	225	5.1			130	2.0	3.3	3.65
16	220	4.6			135	1.7	3.1	3.55
17	220	3.9					2.6	3.35
18	235	3.4					2.6	3.3
19	245	2.8					2.6	3.2
20	265	2.9					2.4	3.05
21	265	2.8					2.5	3.05
22	260	2.9					2.4	3.05
23	265	3.0					2.4	3.0

Time: 0.0°.
Sweep: 0.55 Mc to 16.5 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 34

St. John's, Newfoundland (47.6°N, 52.7°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	1.9					2.7	3.0
01	360	1.9					3.0	3.0
02	320	1.9					3.0	3.0
03	300	1.9					2.9	3.1
04	290	1.8					3.0	3.1
05	280	1.7					3.3	3.4
06	300	1.6					3.5	3.4
07	240	2.6	---	---	---	E	3.0	3.4
08	230	4.2	230	---	120	1.9	2.2	3.7
09	230	4.8	220	3.0	120	2.3	2.5	3.7
10	240	5.2	210	3.5	120	2.5		3.7
11	240	5.5	210	3.6	120	2.6		3.7
12	240	5.4	210	3.6	120	2.6		3.8
13	250	5.3	220	3.5	120	2.5		3.6
14	240	5.3	230	3.4	130	2.4	3.0	3.6
15	240	5.1	230	2.9	130	2.0	1.6	3.7
16	230	4.9	240	2.1	---	E	1.8	3.6
17	230	4.0			---	E	2.7	3.5
18	240	3.5						3.4
19	250	2.6						3.3
20	270	2.2						3.2
21	300	1.9					1.8	3.0
22	330	1.9					3.0	3.0
23	340	1.8					2.8	2.9

Time: 60.0°W.
Sweep: 0.8 Mc to 10.0 Mc in 18 seconds.

Table 35

Wakkanai, Japan (45.4°N, 141.7°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.3					2.3	3.0
01	260	3.3					2.3	3.0
02	280	3.2					2.3	2.9
03	250	3.0					2.1	3.0
04	240	3.0						3.1
05	220	2.9						3.3
06	250	2.5			---	---		3.2
07	240	3.2			---	---	2.2	3.3
08	230	4.7	---	---	130	2.0	2.8	3.45
09	250	5.6	250	---	130	2.3		3.4
10	260	6.2	240	3.6	120	2.5	>2.8	3.4
11	240	6.2	240	3.7	120	2.6		3.5
12	240	5.8	230	3.6	120	2.6		3.5
13	240	5.6	240	3.5	120	2.5		3.5
14	240	5.5	230	3.2	120	2.3	3.4	3.5
15	230	5.0	240	---	130	2.0		3.5
16	220	4.2					1.8	3.5
17	230	3.4						3.3
18	250	3.2					2.4	3.2
19	250	3.0					2.8	3.3
20	260	2.8					2.3	3.0
21	300	3.1					2.5	2.9
22	290	3.2					2.5	3.0
23	280	3.3					2.4	3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 36

Akita, Japan (39.7°N, 140.1°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0					2.3	2.9
01	270	3.0					2.3	2.9
02	260	3.0					2.3	3.0
03	240	2.9					2.2	3.1
04	220	3.0					2.2	3.2
05	230	2.6					2.3	3.1
06	250	2.4					2.2	3.1
07	230	3.4			---	---	2.3	3.4
08	230	4.6	220	---	120	1.9	2.9	3.5
09	250	5.2	240	---	110	2.4	3.5	3.4
10	270	6.4	240	3.7	110	2.6	3.5	3.4
11	250	6.8	240	3.8	110	2.7	3.9	3.6
12	250	6.0	230	3.8	110	2.8	3.5	3.6
13	240	5.5	230	3.7	110	2.7	3.5	3.6
14	240	5.3	230	3.5	110	2.5	3.5	3.6
15	230	5.2	210	2.9	120	2.3	3.3	3.6
16	220	4.3	---	---	130	1.8	2.8	3.6
17	230	3.4					2.9	3.3
18	240	3.2					2.3	3.3
19	240	3.1					2.3	3.3
20	240	2.8					2.4	3.2
21	270	3.0					2.3	3.0
22	280	3.0					2.5	2.95
23	260	3.0					2.3	3.0

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 37

Tokyo, Japan (35.7°N, 139.5°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	2.7					2.3	3.0
01	270	2.8					2.5	3.0
02	250	2.9					2.5	3.1
03	220	2.9					2.1	3.25
04	210	2.6					2.0	3.35
05	260	2.3					2.0	3.0
06	260	2.3					1.8	3.1
07	220	3.7	---	---	160	1.7	2.5	3.4
08	230	4.9	230	---	120	2.1	2.9	3.5
09	250	5.3	230	3.8	120	2.5	3.2	3.4
10	270	6.5	220	4.0	110	2.7	3.4	3.3
11	250	7.0	220	4.0	110	2.9	3.5	3.4
12	250	6.6	220	4.0	110	2.9	3.5	3.5
13	250	5.7	220	4.0	110	2.8	3.1	3.5
14	250	5.5	220	3.7	110	2.6	3.3	3.5
15	240	5.2	220	3.2	120	2.4	3.0	3.5
16	220	4.6	220	---	120	1.9	2.9	3.5
17	220	3.7					2.8	3.4
18	240	3.4					2.6	3.25
19	230	3.2					2.5	3.3
20	230	2.8					2.5	3.3
21	250	2.6					2.4	3.1
22	270	2.7					2.4	3.0
23	280	2.8					2.4	3.0

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 38

Yamagawa, Japan (31.2°N, 130.6°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.6					1.8	2.8
01	310	2.7					2.0	2.9
02	300	2.7						3.0
03	260	2.8						3.2
04	250	2.9						3.4
05	290	2.2						3.0
06	330	2.3						2.9
07	280	2.7						3.1
08	250	4.8			140	1.8		3.4
09	260	5.4	250	3.5	120	2.3		3.4
10	300	5.8	250	3.8	120	2.6	3.6	3.25
11	290	7.4	240	4.0	120	2.8	3.8	3.3
12	270	7.4	240	4.1	110	2.9	3.8	3.35
13	270	6.6	240	4.0	120	2.9	3.5	3.3
14	270	6.0	240	4.0	110	2.8	3.4	3.4
15	260	5.8	240	3.7	120	2.6	3.2	3.4
16	250	5.1	240	3.0	120	2.3	3.0	3.4
17	250	4.7	---	---	130	1.9	2.0	3.5
18	240	3.6					2.3	3.4
19	270	3.0					2.4	3.1
20	250	3.2						3.2
21	260	2.7					2.0	3.2
22	290	2.5						3.0
23	310	2.6					1.8	2.9

Time: 135.0°E.
Sweep: 0.8 Mc to 20.0 Mc in 15 minutes, manual operation.

Table 39

Baguio, P. I. (16.4°N, 120.6°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.0						3.1
01	260	3.0						3.2
02	230	2.8						3.4
03	220	2.1						3.5
04	260	1.5						3.45
05	---	E						---
06	---	E						(3.1)
07	240	4.4			120	1.8		3.5
08	(290)	5.8	220	---	110	2.4	3.2	3.2
09	300	7.4	210	3.9	110	2.8	3.7	3.2
10	300	8.3	200	4.1	110	3.0	4.1	3.05
11	330	8.2	190	4.1	110	(3.1)	4.4	2.7
12	360	7.6	190	4.1	110	3.1	5.0	2.6
13	340	7.8	190	4.1	110	3.1	4.5	2.6
14	310	8.1	200	4.1	110	3.0	4.5	2.9
15	290	8.0	210	4.0	110	2.8	4.0	3.1
16	260	7.9	220	---	110	2.3	3.8	3.3
17	230	7.5			---	---	3.6	3.4
18	210	6.4					2.8	3.5
19	210	5.2					3.2	3.4
20	230	4.3					2.9	3.2
21	230	4.5					3.0	3.3
22	220	4.1					1.8	3.4
23	240	3.1						3.1

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 40*

Singapore, British Malaya (1.3°N, 103.8°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.0					2.7	3.1
01	255	2.5					2.2	3.0
02	270	2.4					2.3	3.1
03	270	2.1					1.9	3.0
04	270	2.0					2.8	3.1
05	265	2.0					2.8	3.2
06	250	2.4					3.0	(3.2)
07	245	5.0			120	2.0	3.5	3.2
08	305	6.0	220	4.0	115	2.6	5.0	2.9
09	370	6.9	215	4.2	115	2.9	5.4	2.6
10	405	7.2	205	4.3	110	3.2	5.4	2.3
11	460	7.2	205	4.3	110	3.3	6.5	2.2
12	485	7.4	200	4.3	110	3.4	6.4	2.2
13	420	7.5	200	4.3	110	3.3	5.7	2.3
14	385	7.7	200	4.3	110	3.2	5.3	2.3
15	390	7.7	205	4.2	110	3.0	5.9	2.4
16	360	7.6	220	4.1	115	2.8	4.2	2.4
17	(300)	7.6	235		120	2.3	4.0	2.5
18	260	7.5			(145)	1.5	3.2	2.6
19	270	7.1					3.1	2.8
20	285	6.0					3.2	2.8
21	275	5.7					3.1	2.9
22	240	6.4					3.1	3.3
23	210	4.4					2.8	3.4

Time: 105.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 41

Rarotonga I. (21.3°S, 159.8°W) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.6					2.8	3.0
01	250	5.1					3.0	3.1
02	260	4.1					2.5	3.1
03	280	3.4					2.5	3.05
04	290	3.4					2.5	3.1
05	300	3.0					2.8	3.1
06	250	3.4	230	---	---	E	3.0	3.1
07	280	5.4	230	3.5	110	2.2	4.2	3.2
08	300	6.0	220	4.0	105	2.6	4.6	3.1
09	320	7.3	210	4.2	105	3.0	4.4	3.0
10	320	7.9	200	4.3	105	3.2	6.1	2.9
11	320	8.9	200	4.4	105	3.3	5.0	3.0
12	320	10.0	200	4.4	105	3.4	4.5	3.0
13	300	10.5	200	4.4	105	3.4	4.5	3.1
14	290	11.0	210	4.3	105	3.3	4.2	3.2
15	270	10.2	210	4.2	105	3.2	5.3	3.3
16	270	8.4	230	4.1	105	3.0	4.5	3.25
17	270	6.8	220	3.9	110	2.7	4.9	3.3
18	260	6.5	230	3.1	120	2.1	4.5	3.1
19	270	6.0					3.9	3.0
20	300	5.7					3.0	2.9
21	290	5.7					3.5	2.9
22	280	5.7					3.0	2.95
23	290	5.6					3.0	2.9

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual operation.

Table 42

Watheroo, W. Australia (30.3°S, 115.9°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.8					3.8	3.0
01	270	3.7					3.8	3.0
02	250	3.4					3.6	3.0
03	260	3.3					3.4	3.1
04	260	2.8					3.0	3.1
05	260	2.8					1.8	3.1
06	250	3.6	250	2.9		1.8	3.2	3.3
07	(290)	---	250	3.5		2.2	3.8	---
08	---	(4.9)	250	3.9		2.7	4.0	(3.2)
09	(350)	5.3	220	4.0		3.0	6.0	(3.0)
10	---	6.0	220	4.2		3.1	5.9	3.0
11	(360)	5.9	200	4.2		3.2	6.4	2.9
12	(370)	6.2	200	4.4		3.3	5.9	2.9
13	340	6.6	210	4.4		3.3	5.7	3.0
14	340	6.0	200	4.3		3.3	4.7	3.0
15	330	6.0	230	4.2		3.2	3.8	3.1
16	320	6.0	240	4.0		3.1	4.0	3.1
17	300	5.5	250	3.9		2.7	4.0	3.2
18	280	5.0	240	3.4		2.2	4.0	3.2
19	250	4.3	---	---		1.6	4.0	(3.3)
20	260	4.2					3.9	3.1
21	260	4.0					3.8	3.1
22	280	4.0					3.8	3.0
23	300	3.9					3.8	3.0

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 2 minutes.

Table 43

Christchurch, New Zealand (43.6°S, 172.8°E) January 1954

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.2					3.4	3.1
01	270	3.5					3.4	3.1
02	270	3.1					2.4	3.1
03	270	2.7					3.2	3.0
04	280	2.6				E	2.8	3.1
05	260	3.4	250	---		1.5	2.6	3.3
06	320	4.3	240	3.4		2.1	4.4	3.2
07	320	4.7	240	3.8		2.4	4.8	3.3
08	330	5.0	230	4.1		2.7	5.1	3.15
09	320	5.3	220	4.2		3.0	5.8	3.2
10	320	5.5	220	4.3		3.1	6.0	3.3
11	320	5.5	210	4.3		3.2	5.9	3.2
12	350	5.4	230	4.3		3.2	5.0	3.1
13	330	5.4	220	4.3		3.2	4.3	3.1
14	350	5.3	230	4.3		3.1	4.3	3.1
15	330	5.4	230	4.2		3.0	4.8	3.1
16	320	5.4	230	4.1		2.8		3.2
17	320	5.5	240	3.8		2.6	4.2	3.1
18	280	5.7	230	3.4		2.2	3.7	3.2
19	260	5.8	250	2.7		1.5		3.2
20	250	5.7				---	3.8	3.1
21	260	5.5					3.6	3.0
22	260	5.1					3.7	3.1
23	270	4.6					3.2	3.1

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 44

Delhi, India (28.6°N, 77.1°E) December 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	2.8						3.4
01	280	2.6						3.25
02	270	2.6						3.3
03								
04	260	2.8						3.35
05	240	2.4						3.4
06	260	2.6						3.4
07	220	4.4						3.6
08	230	5.6						3.55
09	240	6.1						3.55
10	240	6.2						3.55
11	240	6.3						3.45
12	240	6.4						3.6
13	240	6.4						3.4
14	240	6.0						3.45
15	230	5.8						3.55
16	230	5.6						3.55
17	220	5.5						3.6
18	220	4.2						3.55
19	230	3.6						3.6
20	240	3.2						3.55
21	240	3.1						3.6
22	240	2.7						3.5
23	280	2.9						3.35

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 45

Bombay, India (19.0°N, 73.0°E) December 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	270	5.7						3.25
08:30	300	6.8						3.05
09	330	7.2						2.9
10	360	7.9						2.8
11	390	9.2						2.75
12	390	10.4						2.65
13	390	10.8						2.6
14	420	11.6						2.6
15	420	11.9						2.55
16	420	12.3						2.55
17	390	11.7						2.6
18	390	11.1						2.7
19	360	10.2						2.8
20	330	8.6						2.85
21	300	7.3						3.05
22	300	5.7						3.15
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 46*

Khartoum, Sudan (15.6°N, 32.6°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	285	---					3.1	
01	275	---					3.1	
02	245	---					3.1	
03	215	(2.8)					3.5	
04	225	(2.1)					3.1	(3.1)
05	(235)	(2.2)					3.1	
06	255	2.7					3.1	(3.0)
07	230	5.5			(135)	2.2	3.3	(3.2)
08	280	6.9	215	3.8	(130)	2.5	3.1	3.1
09	300	(7.7)	200	4.0		(2.8)	4.0	(2.9)
10	325	(8.0)	205	4.2	(115)	2.9	3.9	(2.7)
11	315	8.4	195	4.2			4.1	2.9
12	305	8.4	205	4.2		(3.2)	4.0	2.8
13	310	8.3	210	4.2		(3.1)	4.2	2.8
14	295	8.9	215	4.1		3.0	4.3	2.9
15	260	9.2	225	3.8		(2.8)	4.2	3.1
16	255	8.3	225	3.5		(2.3)	5.8	3.2
17	230	7.6					5.8	(3.4)
18	220	7.8					5.7	(3.3)
19	220	6.8					3.9	(3.2)
20	230	6.2					4.5	(2.9)
21	255	5.8					3.1	(3.0)
22	265	(4.5)					3.7	(2.8)
23	285	(4.2)					4.0	

Time: 30.0°E.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and fEs, which are median values.

Table 47

Madras, India (13.0°N, 80.2°E) December 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	330	>5.0						2.9
07	360	6.2						2.85
08	390	7.3						2.65
09	420	7.7						2.55
10	420	7.8						2.5
11	450	7.5						2.45
12	450	7.6						2.4
13	450	7.7						2.4
14	450	8.4						2.45
15	450	8.4						2.45
16	450	8.4						2.45
17	420	8.2						2.55
18	420	7.6						2.6
19	390	7.0						2.7
20	360	6.3						2.75
21	360	5.9						2.8
22	---	>5.6						2.85
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 48

Tiruchy, India (10.8°N, 78.8°E) December 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	330	>4.2						3.0
07	390	6.2						2.6
08	420	7.2						2.45
09	480	7.3						2.35
10	480	7.1						2.3
11	510	7.0						2.25
12	510	7.1						2.2
13	540	7.2						2.2
14	510	>7.5						2.2
15	510	7.8						2.25
16	510	8.0						2.3
17	480	7.8						2.35
18	450	>7.6						2.4
19	420	6.8						2.5
20	>420	6.6						2.5
21	400	6.0						2.55
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 49

Carietchurch, New Zealand (43.6°S, 172.8°E) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.7					4.0	3.0
01	260	4.4					3.7	3.1
02	260	3.9					4.0	3.05
03	260	3.6					3.5	3.1
04	270	3.5				---	2.8	3.1
05	260	4.1	250	2.8		1.7		3.3
06	290	4.7	250	3.6		2.3		3.3
07	320	5.0	250	3.9		2.6	4.6	3.2
08	320	5.3	---	4.1		2.9	5.8	3.2
09	320	5.5	---	4.3		3.1	6.0	3.1
10	340	5.7	225	4.3		3.2	5.8	3.1
11	320	6.0	210	4.3		3.2	5.4	3.2
12	330	6.0	230	4.4		3.3	5.6	3.1
13	330	5.8	220	4.3		3.2	5.4	3.2
14	340	5.7	220	4.3		3.2	5.1	3.1
15	330	5.7	230	4.3		3.0	4.3	3.1
16	320	5.7	240	4.1		2.8		3.1
17	320	5.5	250	3.9		2.6		3.1
18	290	5.8	255	3.4		2.2		3.1
19	270	6.0	270	2.8		1.6		3.1
20	260	6.3					3.5	3.1
21	260	6.0					4.2	3.0
22	270	5.6					4.4	3.0
23	270	5.2					4.3	3.0

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50*

Falkland Is. (51.7°S, 57.8°W) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.9					3.1	2.9
01	270	5.8					3.2	2.9
02	270	5.5					2.4	2.8
03	270	5.2					1.2	2.8
04	255	5.5	(235)		140	1.5	1.7	2.9
05	305	5.9	(240)	3.5	125	1.9	2.7	3.0
06	310	5.8	240	3.7	110	2.4	3.4	2.9
07	325	6.0	240	4.0	110	2.5	4.7	3.0
08	315	6.1	225	4.1	105	2.9	5.6	3.1
09	(340)	6.0	225	4.2	105	3.1	6.8	3.1
10	(350)	5.8	215	4.3	100	3.1	5.9	2.9
11	(355)	6.0	215	4.3	105	3.2	5.6	3.0
12	(350)	5.6	220	4.3	105	3.2	5.2	3.0
13	(360)	5.7	225	4.3	105	3.2	4.0	3.0
14	320	5.5	225	4.2	105	3.1	4.7	3.0
15	320	5.6	225	4.1	105	3.0	5.2	3.1
16	315	5.8	225	4.0	105	2.8	5.4	3.1
17	300	5.8	235	3.9	110	2.6	5.8	3.1
18	285	6.1	(225)	3.5	120	2.2	5.5	3.1
19	290	6.7	(240)		140	1.8	5.4	3.1
20	265	6.7					3.6	3.0
21	275	6.8					3.3	2.9
22	275	6.6					3.0	3.0
23	280	6.1					3.2	2.9

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.
*Average values except foF2 and Es, which are median values.

Table 51*

Port Lockroy (64.8°S, 63.5°W) December 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	7.0					1.4	2.9
01	265	7.0					1.5	2.9
02	265	7.0			(150)	(1.4)	1.4	2.9
03	275	7.0			130	1.5	1.3	2.8
04	275	7.0	250	3.0	110	1.8	2.8	2.8
05	275	7.0	240	3.3	105	2.1	3.2	2.9
06	290	6.5	230	3.6	100	2.3	4.5	2.9
07	310	5.8	230	3.8	100	2.5	4.8	2.9
08	310	5.3	230	3.9	100	2.7	4.4	(3.1)
09	325	5.0	(230)	4.0	100	2.9	5.4	(3.1)
10	330	4.9	(215)	4.1	100	2.9	5.4	(3.1)
11	360	4.9	(215)	4.1	100	3.0	5.5	
12	385	4.9	(220)	4.2	100	3.0	5.9	(3.0)
13	325	5.0	210	4.2	100	3.0	5.2	(3.1)
14	(335)	4.8	(235)	(4.1)	100	3.0	6.3	
15	355	4.8	225	4.1	100	2.9	5.3	
16	325	5.0	225	4.0	100	2.8	5.4	(3.0)
17	325	5.2	(235)	(3.9)	100	2.6	4.7	3.1
18	(310)	5.2	(220)		100	2.5	4.9	3.0
19	280	5.6	(235)		105	2.1	4.4	3.0
20	260	6.1			110	1.8	3.4	3.0
21	265	6.4			(115)		1.4	3.0
22	270	6.8					1.4	2.9
23	265	7.0					1.4	2.8

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.
*Average values except foF2 and fEs, which are median values.

Table 52

Christchurch, New Zealand (43.6°S, 172.7°E) November 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.4					2.3	3.0
01	280	4.0					2.3	3.0
02	270	3.6					2.1	3.0
03	270	3.2					1.8	3.0
04	280	3.0				E		3.0
05	270	3.7	260	---		1.6		3.2
06	280	4.3	240	3.3		2.1		3.3
07	330	4.7	240	3.8		2.5	4.8	3.1
08	330	5.2	230	4.1		2.8	5.0	3.2
09	320	5.7	220	4.2		3.0	4.6	3.15
10	320	5.8	220	4.3		3.1	5.2	3.1
11	320	5.8	220	4.3		3.2	4.6	3.1
12	320	6.1	230	4.4		3.2	4.3	3.1
13	310	5.9	220	4.4		3.2	4.3	3.2
14	320	5.8	220	4.3		3.1	4.2	3.2
15	320	5.8	230	4.2		2.9		3.1
16	300	5.8	230	4.0		2.7		3.1
17	280	5.8	250	3.7		2.4		3.1
18	280	6.0	270	3.2		1.9		3.1
19	260	6.5				1.4	3.2	3.0
20	260	6.4					3.6	3.0
21	260	5.9					3.3	3.0
22	270	5.4					3.1	3.0
23	280	4.9					2.9	3.0

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 53

Godhavn, Greenland (69.2°N, 53.5°W) October 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(2.4)					>4.3	(3.1)
01	250	(2.5)					3.7	(3.1)
02	(270)	(2.6)					>4.1	(3.0)
03	(280)	(2.5)					3.5	(3.0)
04	(270)	(2.4)					3.9	(3.1)
05	(270)	(2.5)					4.0	(3.0)
06	(255)	(2.6)					4.1	(3.0)
07	(290)	(3.0)					4.2	(2.9)
08	(275)	(3.5)	(240)	---	---	---	4.5	(3.1)
09	(260)	(4.1)	(240)	---	---	---	3.0	(3.3)
10	(260)	(4.3)	<250	(3.0)	---	---	2.9	(3.3)
11	(280)	(4.6)	(240)	(3.3)	---	---		3.3
12	(280)	(4.3)	(230)	(3.4)	110	(2.2)		(3.3)
13	(260)	(4.6)	(230)	(3.4)	110	(2.2)	3.0	(3.3)
14	(260)	(4.5)	240	---	(120)	(2.0)	2.8	(3.4)
15	(240)	(4.6)	230	---	---	---	4.2	(3.3)
16	240	(4.0)	220	---			5.2	(3.4)
17	240	(3.8)	---	---			5.6	(3.3)
18	230	(3.5)					5.8	(3.2)
19	230	(3.4)					6.0	(3.2)
20	(230)	(3.3)					6.6	(3.2)
21	(230)	(3.0)					5.6	(3.2)
22	<250	(2.8)					4.5	(3.1)
23	255	(2.7)					5.4	3.1

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 54

Tananarive, Madagascar (18.8°S, 47.8°E) September 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	3.8						3.35
01	230	3.3						3.4
02	230	2.7					1.8	3.35
03	240	2.4					1.6	3.2
04	260	2.4					1.7	3.1
05	280	2.3					1.6	3.05
06	250	3.6			---	1.4		3.3
07	240	5.3	240	---	120	2.1	1.8	3.45
08	280	6.3	230	4.2	120	2.7	2.6	3.4
09	290	7.3	220	4.4	120	3.0	< 2.5	3.2
10	280	8.1	220	4.5	120	3.2	< 2.5	3.3
11	270	8.4	210	4.5	110	3.3	2.3	3.35
12	270	7.5	210	4.6	110	3.3	2.8	3.4
13	290	6.6	210	4.6	110	3.3	2.9	3.3
14	300	6.6	210	4.4	120	3.2	2.9	3.15
15	270	7.0	220	4.3	120	3.0		3.35
16	260	6.4	220	---	120	2.7	3.0	3.4
17	240	5.9	240	---	120	2.2	2.8	3.4
18	230	5.?			170	1.4	2.2	3.3
19	240	5.0					2.0	3.15
20	230	4.3						3.25
21	< 250	4.0						3.15
22	260	3.8						3.05
23	260	3.9						3.15

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 55

Calcutta, India (22.6°N, 88.4°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(270)	5.2						3.0
01	255	(4.8)					2.6	
02	250	4.3						
03	(255)	(4.5)					2.8	3.0
04	240	3.8				---	2.6	
05	(240)	(3.2)				---	2.8	
06	240	4.4				---	2.5	3.1
07	240	6.6			2.3	3.2		
08	240	6.6			2.7	3.5		
09	240	7.4			3.0	3.4		2.8
10	270	8.3			3.3			
11	270	9.2			3.4			
12	270	10.7			3.8	4.1		2.8
13	270	10.4			3.6			
14	270	11.0			3.5			
15	270	11.0			3.4			2.7
16	255	11.0			3.2	3.7		
17	240	11.0			---	3.8		
18	240	11.0				3.5		3.1
19	210	10.6						
20	225	9.2						
21	240	7.7				3.4		3.1
22	(240)	(6.4)						
23	(270)	(5.0)					3.1	

Time: 90.0°E.
Sweep: 0.5 Mc to 18.0 Mc in 10 minutes, semi-automatic operation.

Table 56

Tananarive, Madagascar (18.8°S, 47.8°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	2.8						3.35
01	245	2.7						3.35
02	230	2.5					1.5	3.4
03	220	2.3					1.6	3.5
04	250	1.9					1.5	3.2
05	280	1.9					1.6	3.2
06	260	2.3			---	---	1.6	3.2
07	235	4.8			<150	2.0		3.5
08	250	5.6	230	---	120	2.4		3.55
09	285	6.0	230	4.3	120	2.8	1.8	3.3
10	280	7.2	220	4.4	120	3.1		3.3
11	270	7.6	220	4.4	120	3.2	3.3	3.35
12	270	7.0	220	4.4	120	3.3	3.2	3.45
13	270	6.4	220	4.4	120	3.2	3.2	3.4
14	265	5.8	210	4.3	120	3.1	3.2	3.45
15	265	5.6	210	4.2	120	3.0	2.9	3.45
16	250	5.8	230	---	120	2.6	3.5	3.45
17	230	5.4	230	---	130	2.2	3.0	3.5
18	220	4.8					2.3	3.45
19	225	4.4					2.4	3.45
20	225	3.1						3.4
21	250	2.9						3.1
22	250	3.1						3.25
23	240	3.0						3.35

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 57

Townsville, Australia (19.3°S, 146.8°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.4					2.0	3.1
01	240	3.2					1.9	3.2
02	220	(3.2)						(3.3)
03	215	(3.0)					2.4	(3.2)
04	220	(2.4)					2.4	(3.2)
05	240	2.2					2.2	3.0
06	250	2.5					2.5	3.1
07	240	4.8			130	1.8		3.3
08	255	5.5	225	3.8	120	(2.4)	3.6	3.3
09	280	6.0	235	4.0	120	2.8	3.6	3.2
10	260	6.8	230	4.2	120	3.0	3.7	3.3
11	280	6.1	220	4.2	120	3.1	4.5	3.3
12	300	6.1	205	4.2	125	3.1	4.4	3.2
13	295	5.9	215	4.2	120	3.0	5.4	3.3
14	290	6.2	220	4.0	130	3.0	4.4	3.2
15	280	5.8	210	4.0	130	2.7	4.1	3.2
16	250	5.5	225	3.6	130	2.3	3.7	3.3
17	240	5.4			125	2.1	3.5	3.3
18	230	4.6			---	---	2.6	3.3
19	230	3.9					2.1	3.3
20	245	3.0						3.0
21	270	(3.1)						(3.1)
22	270	(2.8)					2.1	(3.1)
23	260	(3.4)						(3.1)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 58

Brisbane, Australia (27.5°S, 153.0°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.6					2.8	3.2
01	250	3.8					3.6	3.2
02	250	3.8					3.0	3.3
03	230	3.7					3.5	3.4
04	240	3.4					3.0	3.4
05	230	2.6					2.0	3.3
06	240	3.0					2.0	3.2
07	230	4.7			150	2.1		3.6
08	260	5.2	230	4.0	110	2.4		3.4
09	280	5.4	230	4.1	100	2.8		3.4
10	285	5.5	220	4.3	100	3.0		3.4
11	285	5.8	210	4.3	100	---		3.4
12	280	5.8	210	4.3	100	---		3.5
13	280	5.8	200	4.2	100	3.1	2.3	3.4
14	270	5.9	220	4.2	100	3.0	3.5	3.5
15	260	5.7	210	4.0	105	2.9	3.7	3.5
16	250	5.4	210	3.5	110	2.4	2.7	3.5
17	230	5.0			140	1.9	2.6	3.5
18	220	4.3					2.8	3.4
19	220	3.6					2.8	3.2
20	260	3.5						3.1
21	250	3.8						3.1
22	250	3.6					1.9	3.1
23	260	3.6					2.0	3.1

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 59

Canberra, Australia (35.3°S, 149.0°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	3.2					3.1	(3.2)
01	---	3.0					3.2	3.2
02	---	(3.1)					3.2	3.2
03	---	3.1					3.2	3.2
04	---	3.1					3.2	3.2
05	---	(2.7)					3.1	(3.4)
06	---	(2.4)					3.2	(3.2)
07	225	3.6			---	---	3.2	3.5
08	230	4.5	---	---	105	1.9	3.3	3.6
09	250	4.8	220	4.0	100	2.5	3.4	3.5
10	280	5.0	210	4.0	100	2.7	3.4	3.4
11	290	5.4	210	4.1	100	2.9	3.4	3.4
12	285	5.3	200	4.1	100	3.0	3.5	3.3
13	285	5.6	200	4.0	100	3.0	3.5	3.4
14	285	5.5	200	4.0	100	2.9	3.5	3.4
15	250	5.6	210	3.9	100	2.7	3.5	3.5
16	240	5.4	210	(3.5)	100	2.0	3.5	3.5
17	220	4.9	---	---	---	---	3.4	3.4
18	210	3.9					2.8	3.4
19	---	3.5					3.0	3.2
20	---	3.3					2.4	3.0
21	---	3.2					3.0	(3.2)
22	---	(3.0)					2.9	---
23	---	3.0					3.1	(3.1)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 60

Hobart, Tasmania (42.9°S, 147.3°E) August 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.0						2.9
01	300	2.0						2.9
02	300	1.8						2.9
03	300	1.6						2.9
04	300	1.5						(3.0)
05	---	E						(3.1)
06	---	E						---
07	250	2.6			---	---		3.1
08	245	3.5			100	2.0		3.1
09	220	4.0			100	2.3		3.1
10	220	4.2			100	2.5		3.0
11	285	4.5			100	2.7		3.0
12	300	4.8			100	2.7		3.0
13	280	5.0			100	2.8		3.0
14	230	5.0			100	2.6		3.0
15	220	5.0			100	2.4		3.1
16	220	4.7			100	2.1		3.1
17	220	4.0			130	1.4		3.1
18	250	3.4						3.0
19	250	2.8						3.0
20	270	2.5						3.0
21	280	2.3						3.0
22	285	2.0						3.0
23	290	2.0						3.0

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 61

Delhi, India (28.6°N, 77.1°E) July 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04	(300)	(3.7)						3.1
05	300	4.0						3.2
06	280	4.5						3.2
07	280	5.1						3.3
08	280	5.6						3.2
09	300	6.3						3.2
10	320	6.5						3.0
11	330	6.7						2.9
12	300	7.5						3.0
13	320	7.9						3.0
14	300	8.0						3.0
15	300	8.0						3.1
16	300	7.6						3.2
17	280	6.9						3.2
18	(290)	6.2						3.2
19	---	5.8						3.3
20	---	---						
21	---	---						
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 62

Bombay, India (19.0°N, 73.0°E) July 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06	270	4.7						3.3
07	300	5.4						3.1
08	330	6.3						2.9
09	360	6.8						2.8
10	390	7.2						2.6
11	420	8.2						2.6
12	420	9.0						2.5
13	420	9.2						2.5
14	450	9.4						2.5
15	420	9.7						2.5
16	420	9.9						2.6
17	390	9.4						2.7
18	360	8.7						2.8
19	330	8.2						3.0
20	330	7.1						3.0
21	300	6.2						3.0
22	300	4.8						3.0
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 63

Madras, India (13.0°N, 80.2°E) July 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06	330	5.3						3.0
07	360	6.5						2.8
08	390	6.8						2.6
09	420	6.8						2.5
10	420	6.8						2.4
11	450	6.6						2.4
12	460	6.5						2.4
13	450	6.7						2.4
14	460	7.0						2.4
15	450	7.3						2.4
16	420	7.5						2.5
17	400	8.2						2.6
18	390	8.0						2.7
19	360	7.2						2.8
20	360	6.0						2.8
21	330	5.2						2.9
22	---	4.8						
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 64

Tiruchy, India (10.8°N, 78.8°E) July 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2**
00								
01								
02								
03								
04								
05								
06	360	4.8						2.9
07	420	6.4						2.6
08	420	6.6						2.5
09	480	6.6						2.4
10	480	6.5						2.3
11	480	6.4						2.2
12	510	6.3						2.2
13	510	6.6						2.2
14	510	6.6						2.2
15	510	7.0						2.2
16	500	7.4						2.3
17	480	7.7						2.3
18	480	7.5						2.4
19	450	7.0						2.4
20	390	6.4						2.6
21	360	5.0						2.7
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 65

Townsville, Australia (19.3°S, 146.8°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	(3.0)						(3.1)
01	230	(3.0)						(3.1)
02	225	(2.7)						3.25
03	220	(3.0)					2.2	(3.3)
04	230	(2.3)					2.3	(3.1)
05	235	(2.4)					2.3	(3.1)
06	230	2.5					3.2	3.2
07	230	4.0			150	1.6	2.7	3.5
08	230	5.0	---	---	110	2.3	3.6	3.4
09	250	5.4	220	3.8	110	2.6	3.6	3.3
10	260	6.3	210	4.0	110	2.7	3.6	3.4
11	260	5.7	220	4.1	110	3.0	4.0	3.4
12	285	5.6	200	4.2	110	3.0	3.8	3.3
13	270	5.8	200	4.1	110	3.0	4.1	3.4
14	270	5.8	195	4.0	120	3.0	3.8	3.3
15	260	5.6	210	3.8	120	2.8	4.1	3.3
16	250	5.6	230	3.4	120	2.5	3.8	3.3
17	230	5.2	---	---	120	2.1	3.7	3.4
18	220	4.3			---	E	3.1	3.4
19	220	3.6					3.5	3.4
20	225	3.0						3.3
21	250	2.8					2.2	3.1
22	250	(2.9)						(3.1)
23	240	(3.0)						3.05

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 66

Brisbane, Australia (27.5°S, 153.0°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	3.5						3.25
01	250	3.6					2.2	3.2
02	240	3.6						3.2
03	240	3.5					2.8	3.3
04	230	3.4					2.8	3.4
05	240	3.0					2.2	3.2
06	230	3.0						3.3
07	220	4.5			150	2.1		3.6
08	240	5.0	230	3.5	110	2.3		3.5
09	255	5.2	220	3.9	110	2.7		3.5
10	260	5.6	230	4.1	110	2.9		3.5
11	255	5.5	210	4.2	100	3.0		3.5
12	280	5.5	210	4.3	100	3.2		3.5
13	280	5.5	200	4.2	100	3.1		3.4
14	270	5.6	220	4.1	105	2.9	4.0	3.35
15	250	5.8	210	3.8	110	2.7	4.1	3.5
16	240	5.4	230	3.2	120	2.3	4.0	3.6
17	220	4.9			---	E	3.6	3.5
18	220	4.1					3.6	3.35
19	230	3.7					2.8	3.25
20	240	3.6						3.2
21	250	3.6						3.1
22	240	3.8						3.2
23	240	3.8						3.1

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 67

Canberra, Australia (35.3°S, 149.0°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	(3.0)					3.1	(3.1)
01	---	3.1					3.0	(3.2)
02	240	(3.0)					3.1	3.1
03	---	(3.0)					3.1	(3.1)
04	---	(3.0)					3.1	(3.2)
05	---	(3.0)					3.2	---
06	---	(2.4)					3.2	---
07	205	3.0					3.1	3.5
08	220	4.1			---	(1.7)	3.4	3.7
09	240	4.6	220	3.6	100	(2.0)	3.5	3.6
10	260	5.0	220	3.9	100	2.6	3.5	3.6
11	270	5.1	210	4.0	100	2.7	3.7	3.6
12	255	5.4	200	4.0	100	2.8	3.7	3.6
13	280	5.5	200	4.0	100	2.8	3.7	3.5
14	260	5.4	200	3.8	100	2.7	3.7	3.5
15	240	5.5	210	3.6	100	2.5	3.8	3.5
16	230	5.0	200	---	(105)	(1.8)	3.5	3.6
17	210	4.5					3.3	3.5
18	210	3.6					3.4	3.4
19	---	2.9					3.1	(3.4)
20	---	(3.0)					3.0	(3.1)
21	---	(3.1)					2.9	(3.2)
22	---	3.0					3.0	(3.2)
23	---	(3.1)					3.0	(3.1)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 68

Hobart, Tasmania (42.9°S, 147.3°E) July 1953

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	E						(3.05)
01	---	E						(3.0)
02	300	1.8						3.0
03	300	2.0						2.9
04	---	1.7						3.05
05	---	E						(3.0)
06	---	E						(3.0)
07	---	E						---
08	250	3.2			120	1.7		3.2
09	230	4.0			100	2.1		3.1
10	220	4.2			100	2.4		3.1
11	210	4.8			100	2.5	3.1	3.0
12	220	5.0			100	2.6	3.0	3.1
13	200	5.0			100	2.5	3.3	3.05
14	200	4.9			100	2.4		3.1
15	220	4.7			100	2.3	2.3	3.1
16	230	4.6			110	1.8		3.1
17	230	4.0			---	---		3.1
18	250	3.2						3.0
19	265	2.5						3.0
20	280	2.0						3.0
21	300	2.0						3.1
22	---	1.9						3.0
23	---	E						(3.0)

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 69

Delhi, India (28.6°N, 77.1°E) June 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00	---	> 3.6						3.2
01	---	> 3.4						3.2
02	---	---						
03								
04	290	> 3.8						3.2
05	280	4.4						3.2
06	280	4.8						3.2
07	280	5.5						3.2
08	280	6.3						3.2
09	280	7.0						3.2
10	280	7.2						3.2
11	300	7.6						3.1
12	300	8.1						3.1
13	300	8.5						3.1
14	300	8.5						3.2
15	300	8.6						3.2
16	280	8.5						3.2
17	280	7.8						3.2
18	280	7.5						3.2
19	280	> 6.8						3.2
20	(280)	(5.2)						3.2
21	(280)	5.0						3.2
22	(300)	4.2						3.2
23	(300)	(4.0)						3.1

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 70

Bombay, India (19.0°N, 73.0°E) June 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	300	5.0						3.2
07	300	5.7						3.1
0830	330	6.4						2.9
09	360	6.6						2.8
10	400	7.2						2.7
11	450	7.9						2.6
12	450	8.6						2.5
13	450	9.1						2.5
14	450	9.5						2.6
15	420	9.7						2.6
16	400	9.7						2.7
17	360	9.1						2.8
18	360	8.4						2.9
19	330	7.8						3.0
20	330	6.9						3.0
21	330	6.0						3.0
22	330	5.0						3.0
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 71

Madras, India (13.0°N, 80.2°E) June 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	330	5.5						3.1
07	360	6.6						2.9
08	390	7.0						2.7
09	420	7.2						2.6
10	450	> 7.2						2.5
11	450	> 7.2						2.4
12	460	7.2						2.5
13	450	7.4						2.5
14	420	8.0						2.6
15	450	8.2						2.6
16	420	8.6						2.6
17	390	8.9						2.6
18	390	> 9.0						2.8
19	390	> 8.0						2.8
20	360	6.8						2.9
21	360	5.7						2.8
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 72

Tiruchy, India (10.8°N, 78.8°E) June 1953

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	360	5.0						2.0
07	390	6.6						2.7
08	420	7.0						2.6
09	450	6.8						2.5
10	480	6.5						2.4
11	480	6.5						2.4
12	510	6.5						2.4
13	510	6.7						2.4
14	510	7.2						2.4
15	510	7.4						2.4
16	510	7.8						2.4
17	480	7.8						2.4
18	480	8.0						2.4
19	450	7.6						2.5
20	420	7.0						2.6
21	420	6.1						2.6
22								
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

TABLE 73

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

IONOSPHERIC DATA

h' F2 (Characteristic), Km (Unit), June (Month), 1954

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E. J. W., J. W. P. J. J. S.

Calculated by: E. J. W., J. W. P. J. J. S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(260)S	(300)S	S	S	(320)S	250	390	350	360H	320H	390	360	[400]S	390	380	350	410	330	300	240	220	220	(280)A	300
2	(300)A	[300]A	(300)S	S	S	240	310	340	410	310	380	340	(380)A	[390]A	410H	380H	340	320	290	260	220	210	(250)A	A
3	A	270	[290]A	280	300	220H	270H	360	410H	[400]A	380	370H	370H	370	410H	380	390	340	280	[260]A	240	220	230	280
4	[300]A	(310)A	280	A	S	240	300	320	360	38[illegible]	390	430	370	400	400	330	330	310	290	260	240	230	240	240
5	260	270	260	260S	250	230	350	270	280	290	390	360	390	450	360	330	340	300	290	260	250	240	250	240
6	260	260	270	290S	260	270	340H	350H	[400]A	450	320	360H	400	370H	390	350	350	320	270	260	220	240	(250)A	(310)A
7	[300]A	[280]A	270	(280)S	280	230H	(260)L	270	400H	410H	330	[330]A	330	330	330	[340]A	350	300	A	A	220	250	[260]A	(270)A
8	270	280	(270)S	(250)S	[250]S	250	[290]A	(330)S	A	A	A	730	410	420	470	520	440	(370)A	280	260	A	A	270	(310)A
9	290	250	260	270	(250)S	250	330	320	410H	[400]A	390	390	370	320	370	380	380	320	300	[210]A	240	240	250	230
10	250	240	310	(270)S	(280)S	240	460	340	300H	A	A	A	A	G	630	440	370	420H	320	[290]A	(260)A	(230)S	A	S
11	S	S	A	S	A	A	A	A	310	[320]A	300	(380)S	420	[420]S	410	[410]A	410	320	340	[240]A	[260]A	220	(270)A	A
12	A	A	A	260	(270)S	240	310	A	A	A	370	350	A	A	320	360	350H	270	290	280	230	250	280	(280)S
13	250	A	A	280	(300)S	260	400	S	S	S	490	[460]S	(430)S	S	S	A	(370)S	[330]A	290	250	230	280	240	290
14	(300)S	S	A	(300)S	A	240	A	A	390	(350)A	500	390	320H	400	330	460H	420	340	[300]A	270	(250)A	230	280	(290)A
15	(280)S	270	270	(290)S	290	250	310	320	410	300	290	560	370	350	C	C	S	A	(290)A	250	(240)A	240	250	270
16	[280]A	280	270	A	A	250	(320)L	370	380	370	320	320H	340	280	[280]A	290	340	300	(300)A	260	240	(250)S	260	260
17	230	270	S	S	S	(250)S	330H	330	320	330	A	A	420	[400]A	380	410	410	[360]A	[310]A	[280]A	(270)A	270	[260]A	(290)S
18	240	250	270	(280)S	(280)S	(270)B	350	290	310	280	290	[340]A	380H	A	A	380	350H	300	300	300H	240	250	260	290
19	270	(290)S	250	(280)S	260	250	380	(290)S	370	450	390H	370	380	470	390	(450)S	360H	330	300	280	260	250	(240)S	(270)A
20	250	260	240	220	270	470	350	410	[380]A	330	320H	360	G	410	440	350H	500	350H	320	270	250	250	250	240
21	240	270	(270)S	(270)S	280	240	350	440	380	280	[320]S	360	310	[340]A	360	410	350	370H	310	290	280	(280)A	250	(250)S
22	[260]A	260	270	(280)S	(310)S	S	S	350	420	420	420	320	360A	360	480	(580)S	450	350	300	(250)A	(240)A	[240]A	(250)A	(240)S
23	(240)S	(280)S	(280)S	(270)S	(290)S	(230)S	590	380H	420	400	[360]S	490	340	490	[440]A	380	370	350	270	250	240	220	220	270
24	S	S	S	S	280	270	380	330	420	450S	330	390	320	370	420	380	390	380	320	280	220	220	270	(300)A
25	S	(260)S	260	300	(300)S	250	330H	280	350	390	470	380	300	340	280	290	400	380	(320)A	[270]A	220	A	A	250
26	A	A	A	A	A	250	[330]A	350	A	A	A	A	A	A	A	360	300	C	C	C	240	230	280	(280)A
27	240	(270)S	270	280	260	260	L	410	A	300	340	360	340	550	360	400	350	350	300	260	250	260	280	260
28	280	(280)S	(280)S	(240)S	280S	280	(410)S	400H	460	G	340	AK	GK	AK	AK	AK	AK	AK	AK	A	A	A	A	(300)S
29	(290)S	S	S	A	A	(230)S	(360)S	330	330	300	350	470	420	A	A	360	340	370	300	[280]A	270	270	250	240
30	250	240	270	280	(290)S	250	280	250H	320H	340	600	350H	350	[360]S	370	[370]A	390	330	310	290	250	250	230	240
31																								
Median	260	270	270	280	280	250	340	340	380	350	360	360	370	390	380	380	370	330	300	260	240	240	250	270
Count	24	23	21	21	22	28	26	26	25	25	26	26	27	24	24	27	28	27	27	27	28	27	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 74

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), June (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.5)$^{D}_{S}$	(2.0)$^{D}_{S}$	(2.1)$^{J}_{S}$	(2.1)$^{J}_{S}$	(1.9)$^{D}_{S}$	2.6	3.6	4.2	5.1^{H}	4.9^{H}	4.8	4.9	[4.8]^{S}	4.8	4.8	4.8	4.7	4.9	5.4	6.0	5.8	4.2	3.0	2.5
2	2.4	[2.2]^{A}	(1.9)^{S}	(1.5)$^{J}_{S}$	[1.7]$^{A}_{S}$	2.7	3.7	4.1	4.4	4.9	4.8	5.2	4.9	[4.8]^{A}	4.8^{H}	4.8^{H}	5.0	5.1	5.2	5.6	5.7	4.4	3.1^{F}	A
3	A	2.4	[2.3]$^{A}_{S}$	(2.1)$^{F}_{S}$	(1.9)$^{F}_{S}$	(3.1)$^{S}_{H}$	3.7^{H}	3.8	4.3^{H}	[4.5]^{A}	4.7	4.8^{H}	4.8^{H}	4.9	4.7$^{A}_{H}$	4.8	4.8	4.9	5.1	(5.1)^{A}	5.5	5.2	4.3	2.9^{F}
4	[2.9]^{A}	2.9^{F}	2.4	[2.2]^{A}	(1.9)$^{D}_{S}$	(2.5)$^{F}_{S}$	3.9^{H}	4.2	4.4	(4.6)^{S}	4.6	4.7	4.8	4.8	4.9	5.1	5.2	5.1	5.2	5.0	5.6	5.4	(4.9)$^{J}_{S}$	(3.9)$^{J}_{S}$
5	(3.6)$^{F}_{S}$	(3.0)$^{F}_{S}$	(2.8)$^{F}_{S}$	(2.8)$^{F}_{S}$	(3.1)$^{F}_{S}$	3.0^{F}	3.6^{F}	4.5^{F}	(4.5)^{D}	4.4	4.5	4.8	4.8	4.7^{H}	5.0	5.2	5.4	5.6	5.7	(6.1)^{S}	6.0	(5.4)^{S}	4.7^{F}	(3.7)^{F}
6	3.1^{F}	(2.8)^{F}	(2.8)$^{F}_{S}$	2.4^{F}	2.4^{F}	2.9	3.8^{H}	4.2^{H}	[4.6]^{A}	4.5	5.2	5.1^{H}	4.8	4.9^{H}	4.8	5.0	4.9	5.0	5.2	5.4	5.6	4.8	3.8^{F}	3.1
7	(3.0)$^{A}_{F}$	[2.8]^{A}	(2.6)$^{F}_{S}$	2.2^{F}	2.1^{F}	3.0^{H}	3.6	4.5	4.6^{H}	4.9^{H}	4.9	[5.0]^{A}	5.2	(5.4)^{S}	5.4	[5.3]^{A}	5.2	5.8	A	A	6.0	5.0	3.7	3.5^{F}
8	3.1	(2.9)^{F}	2.5^{F}	(2.1)^{F}	[2.2]^{S}	2.4	[3.4]^{A}	4.4	A	A	(4.6)^{A}	4.5	4.8	4.7	(4.5)^{S}	4.4	4.3	4.8	5.4	5.8	A	A	3.6	3.3
9	3.2^{F}	3.1	2.5	2.3^{F}	2.2^{F}	3.1^{H}	(4.0)$^{D}_{H}$	4.2	4.4^{H}	4.9	4.9^{H}	4.9	5.2	5.2	4.5	4.8	4.5	5.0	5.2	[5.4]^{A}	5.9	(5.2)^{S}	4.4	(3.6)$^{F}_{S}$
10	3.2^{F}	2.2^{F}	(1.9)$^{F}_{S}$	1.9	2.0	3.0	3.6	(3.7)$^{S}_{D}$	4.1^{H}	A	A	A	A	< 4.1^{G}	4.2	(4.4)$^{D}_{S}$	4.5	(4.2)^{H}	4.5	4.9	5.1	4.5	A^{S}	S
11	S	S	A	(1.9)$^{D}_{S}$	[2.4]^{A}	3.0	A	A	4.7	[5.0]^{A}	(5.1)^{D}	(4.6)$^{S}_{D}$	(4.5)^{S}	(4.4)$^{J}_{S}$	4.5	[4.4]^{A}	4.3	4.7	(4.5)$^{S}_{D}$	[4.5]$^{A}_{S}$	[4.8]^{A}	(4.2)^{S}	(3.2)$^{F}_{S}$	A
12	A	A	A	(2.3)$^{D}_{S}$	(2.5)$^{F}_{S}$	(3.5)^{F}	3.7$^{F}_{S}$	A	A	A	4.9	4.8	[4.9]^{A}	(5.0)$^{J}_{A}$	5.4	5.2	5.6^{H}	6.4	5.6	6.2	5.9	4.6	(3.6)$^{F}_{S}$	(3.0)$^{F}_{S}$
13	(3.1)$^{F}_{S}$	A	A^{S}	(2.1)$^{F}_{S}$	(2.2)^{S}	2.6	3.5	(3.9)$^{J}_{S}$	(4.0)$^{J}_{S}$	(4.2)^{S}	4.3	[4.4]^{S}	(4.5)^{S}	S	S	A	(4.7)^{S}	[5.1]^{A}	5.2	5.5	(4.8)^{S}	4.0	2.7	2.4
14	(2.2)^{S}	A^{S}	A^{S}	(1.9)$^{F}_{S}$	[2.3]$^{A}_{S}$	(2.7)^{S}	A	A	4.4^{S}	4.9	4.6	5.0	5.4^{H}	4.7	4.9	4.5^{H}	(4.4)$^{D}_{S}$	4.7	[5.0]^{A}	5.2	5.2^{F}	4.5	3.5	(3.1)$^{F}_{S}$
15	(2.6)$^{F}_{S}$	3.0$^{F}_{S}$	2.3$^{F}_{S}$	2.1$^{F}_{S}$	(2.1)$^{F}_{S}$	3.1	4.0	4.6^{H}	(4.5)$^{S}_{D}$	5.3	5.6	4.5	4.9	5.0	C	C	(4.7)$^{J}_{S}$	4.7	5.0	5.8	5.2	(4.5)^{S}	(3.8)^{S}	3.4
16	(2.8)^{S}	2.3	(1.7)^{S}	A	A	3.0	3.8$^{V}_{H}$	4.2	4.4	4.8^{H}	5.0	5.0^{H}	(4.9)^{H}	4.9	[4.8]^{A}	4.7	4.5^{H}	(4.5)^{S}	4.8	(5.0)$^{S}_{D}$	5.3	(4.7)^{S}	3.8$^{F}_{S}$	(3.5)$^{F}_{S}$
17	(2.7)$^{F}_{S}$	2.0	(1.8)$^{J}_{S}$	[1.7]^{S}	(1.8)$^{J}_{S}$	2.8^{H}	3.8^{H}	4.2	4.7	4.9	4.8	[4.8]^{A}	4.7	[4.7]^{A}	4.7	4.5	4.5	[4.6]^{A}	[5.0]^{A}	[5.1]^{A}	5.8	5.2	[4.1]^{A}	(3.6)$^{F}_{S}$
18	3.3^{F}	(3.1)$^{F}_{S}$	3.0	2.4	2.3	2.8	3.7	4.3	5.0	5.2	5.0	4.8	4.9^{H}	[4.9]^{A}	[4.8]^{A}	4.8	5.2^{H}	5.3	5.3	5.8^{H}	6.1	5.2	3.3$^{F}_{S}$	(3.4)$^{F}_{S}$
19	(2.8)^{F}	2.9	(2.8)$^{F}_{S}$	(2.3)$^{F}_{S}$	(2.3)^{F}	2.8	3.5^{F}	4.1^{H}	4.2	4.3	4.6^{H}	4.7	4.9	4.5	4.7	4.5	(4.6)$^{S}_{H}$	4.5	4.6	4.8	5.2	(4.9)^{S}	4.2^{F}	(3.9)^{S}
20	(3.8)$^{F}_{S}$	(3.3)$^{F}_{S}$	(3.0)$^{F}_{S}$	2.4	(2.0)^{S}	2.8	(3.6)^{S}	3.9	[4.4]^{A}	4.6	5.1^{H}	5.0	< 4.3^{G}	4.5	4.5	4.5^{H}	4.3	4.6^{H}	4.9	5.0	5.5	4.9	4.5	3.8
21	(3.0)$^{F}_{S}$	(2.8)$^{F}_{S}$	2.4	(2.3)$^{F}_{S}$	(1.9)$^{D}_{S}$	3.0	(3.7)^{H}	3.9^{H}	4.4	5.2	(4.7)^{S}	4.8^{S}	5.0	[4.8]^{A}	4.6	4.6	4.8	4.7^{H}	5.0	5.4	5.7	5.4	5.0	(3.8)$^{F}_{S}$
22	(3.4)$^{J}_{S}$	(3.5)$^{F}_{S}$	(2.7)$^{F}_{S}$	(2.0)$^{F}_{S}$	(2.0)$^{F}_{S}$	2.9	(3.3)$^{S}_{J}$	4.1	4.2	4.3	4.5	(4.8)$^{D}_{S}$	[4.7]^{A}	4.6	4.4	(4.2)^{D}	4.3	4.7	5.2	(5.4)$^{F}_{S}$	4.7	(4.3)$^{D}_{A}$	3.8	3.3
23	(2.7)$^{D}_{S}$	(1.9)$^{D}_{S}$	1.9	(1.9)$^{F}_{S}$	(1.8)^{S}	2.9	3.7	3.7^{H}	4.3	4.5^{S}	[4.7]^{S}	4.5^{S}	4.9	4.5	[4.4]^{A}	4.7	4.6	4.9	5.3	5.2	5.4	5.4	(3.4)^{S}	2.8
24	(2.5)$^{J}_{S}$	(2.2)$^{J}_{S}$	(2.1)$^{J}_{S}$	(2.1)$^{J}_{S}$	2.0	2.9	3.9	4.1	(4.2)^{S}	4.5	4.7	4.5	5.0	4.7	4.5	4.7	4.4	4.3	4.5	4.8	5.4	4.5	3.2	2.9
25	(2.7)$^{J}_{S}$	(2.5)^{S}	(2.2)$^{F}_{S}$	2.1	(1.9)^{S}	2.9	3.8^{H}	4.6	4.6	(4.8)^{S}	4.5	5.0	5.6	5.3	5.5	5.0	4.3	4.4	4.8	(5.0)^{A}	5.2	[4.8]^{A}	(4.3)^{A}	(2.5)$^{F}_{S}$
26	(2.9)$^{J}_{A}$	A	A	A	A	3.1	[4.0]^{A}	4.0	A	A	A	A	A	A	A	5.4	5.8	C	C	C	5.4	5.0	4.0$^{F}_{S}$	3.7
27	(3.4)$^{J}_{S}$	3.0	(2.7)$^{J}_{S}$	2.3	(2.4)$^{J}_{S}$	3.0	3.8	4.2	[4.2]^{A}	5.2	5.3	4.9	5.2	4.4	4.9	(4.6)^{S}	4.8	4.5^{H}	4.6	4.7	5.6	5.6	4.6	4.4
28	3.8	(3.3)^{S}	(3.1)^{S}	(2.7)$^{J}_{S}$	(2.3)$^{F}_{S}$	(2.5)^{S}	(3.2)^{S}	3.8^{H}	3.9	< 3.9^{G}	4.5	A^{K}	< 4.1$^{G}_{K}$	(4.5)$^{S}_{K}$	A^{K}	A^{K}	A^{K}	A^{K}	4.6^{K}	[4.4]^{A}	[4.3]^{A}	3.8	(3.5)^{S}	(2.6)^{S}
29	(2.3)$^{F}_{S}$	[2.2]^{S}	(2.0)^{S}	A^{S}	A^{S}	(2.5)^{S}	(3.4)^{S}	3.9	4.4^{H}	4.8	4.6	4.5	4.6	[4.6]^{A}	[4.6]^{A}	4.7	4.8	4.5	4.7	[5.2]^{A}	5.7	(4.6)^{S}	4.2	(3.7)$^{F}_{S}$
30	(3.4)$^{F}_{S}$	2.9	2.3^{F}	2.0	(1.8)$^{F}_{S}$	2.9	3.4	4.7^{H}	4.7^{H}	(4.3)^{S}	4.3	5.2^{H}	4.9	(4.7)$^{J}_{S}$	4.7	[4.6]^{A}	4.5	4.7	4.9	4.8	5.6	(4.9)$^{J}_{S}$	(4.4)$^{S}_{D}$	(3.7)^{S}
31																								
Median	(3.0)	2.8	(2.4)	(2.1)	(2.1)	2.9	3.7	4.2	4.4	4.8	4.7	4.8	4.9	4.7	4.7	4.7	4.7	4.7	5.0	5.2	5.5	4.8	3.8	(3.4)
Count	27	25	25	27	27	30	28	27	27	26	28	27	28	28	26	27	29	28	28	28	29	29	29	27

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

Manual ☐ Automatic ☒

TABLE 75

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

foF2 (Characteristic), Mc (Unit), June (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W., J.W.P., J.J.S.

Lat 38.7°N, Long 77.1°W — 75°W Mean Time

Calculated by: E.J.W., J.W.P., J.J.S

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	(2.3)$^{J}_{S}$	(2.1)$^{D}_{S}$	(2.0)$^{J}_{S}$	[2.0]^{S}	(2.1)$^{D}_{S}$	3.1	3.9	4.6	5.4	4.7	[4.8]^{A}	5.0	4.8	4.8	4.8	4.9	4.8	5.0	5.8	6.2	5.0	3.4	2.7$^{J}_{S}$	2.5
2	A	A	[1.7]$^{A}_{S}$	A^{S}	1.9	3.2	4.0	4.2	(4.5)$^{J}_{S}$	[4.8]^{A}	[5.0]^{A}	(5.1)^{A}	4.9	4.8	5.0	5.0	5.1	5.1	5.3	5.9	5.1	(3.6)$^{F}_{S}$	2.6	A
3	A	(2.5)$^{J}_{S}$	(2.1)$^{F}_{S}$	1.9	2.3	(3.3)$^{J}_{S}$	3.6	4.2	4.7^{H}	[4.8]^{A}	4.8	4.8	[4.8]^{A}	4.9	4.7	4.7	4.8	5.1	5.1$^{J}_{S}$	5.2	5.4	4.3	3.5	2.9
4	[2.9]^{A}	(2.9)$^{F}_{E}$	2.3	[2.0]^{A}	[2.2]^{A}	3.4	(4.2)$^{J}_{H}$	4.6	4.5	4.8	4.5	5.0	4.6	4.9	5.1	5.1	5.1	5.2	5.2	(5.4)$^{J}_{F}$	(5.6)$^{J}_{S}$	(5.0)$^{J}_{S}$	(4.4)$^{J}_{S}$	(3.4)$^{J}_{S}$
5	(3.0)$^{F}_{S}$	(2.7)$^{F}_{S}$	(2.8)$^{F}_{S}$	(2.6)$^{F}_{S}$	(2.7)^{F}	3.4^{F}	4.1^{F}	4.5	4.7	4.4	4.8	4.8	4.7	4.8	5.2	5.0	5.5	5.6	6.0	6.1	(6.1)^{S}	(4.8)^{S}	4.0^{S}	(3.2)^{F}
6	(3.1)$^{J}_{S}$	(2.8)$^{F}_{E}$	2.4^{F}	2.3^{F}	2.5	3.0	4.0	4.6	4.7	5.0	5.0	4.7	4.9	5.0	4.9	4.9	4.9	5.2	5.0	5.8	5.3	4.2	3.3	[3.0]^{A}
7	2.8	(2.6)$^{F}_{S}$	2.3^{F}	(1.9)$^{F}_{E}$	2.2^{F}	(3.5)$^{J}_{S}$	4.3	4.4	4.7	5.1	(4.9)^{S}	(5.1)$^{S}_{P}$	5.5^{H}	5.1	(5.4)$^{S}_{P}$	5.2	5.3	6.0	A	A	(5.3)^{S}	(4.5)^{S}	3.5^{F}	3.2^{F}
8	[2.9]$^{A}_{E}$	(2.5)$^{F}_{S}$	2.4^{F}	(2.0)$^{-}$	(2.3)$^{F}_{S}$	3.3	A	[4.4]^{A}	A	4.7	4.8	4.7	5.0	4.8	4.5	4.6	4.6	5.0	5.6	[5.4]^{A}	4.9	3.4	3.5	[3.2]^{A}
9	3.2	(2.7)$^{F}_{S}$	2.4	2.3^{F}	2.5$^{F}_{S}$	3.5^{H}	4.5	4.1^{H}	4.6^{H}	4.9	(4.8)^{A}	4.9	[5.2]^{C}	4.9	4.8	4.7	4.9	5.0	5.0	(5.8)$^{A}_{S}$	5.5	4.7^{F}	(4.3)$^{F}_{S}$	3.3
10	(3.0)$^{J}_{E}$	1.9	(1.9)$^{J}_{F}$	(1.9)$^{F}_{S}$	2.4	3.3	(4.0)$^{J}_{S}$	(3.7)^{H}	A	A	A	A	A	<4.1^{G}	(4.3)$^{D}_{S}$	[4.4]^{C}	(4.3)$^{H}_{S}$	4.5^{H}	4.6$^{J}_{S}$	(5.1)$^{D}_{S}$	4.8$^{J}_{S}$	3.7	A^{S}	5
11	S	S	S	A	A	A	A	(4.2)^{A}	(4.9)^{S}	5.0	[4.8]^{S}	(4.5)$^{J}_{S}$	[4.5]$^{A}_{S}$	4.5	4.4	[4.4]^{A}	(4.6)$^{J}_{S}$	4.6	4.5	4.8	4.8	(4.1)^{S}	3.0^{F}	A
12	A	A	(2.8)$^{F}_{S}$	[2.1]^{A}	(2.7)$^{F}_{S}$	3.8	A	A	4.7	[4.8]^{A}	5.4	A	A	A	4.8	5.6	5.8	6.0	5.5	(6.2)^{S}	[5.1]^{A}	3.7	(3.4)$^{F}_{S}$	[3.0]$^{A}_{S}$
13	A	A^{S}	(2.3)$^{F}_{S}$	(2.0)$^{F}_{S}$	2.3$^{F}_{S}$	[3.0]^{A}	3.3	(3.9)$^{J}_{S}$	(4.2)$^{J}_{S}$	(4.5)$^{J}_{S}$	(4.4)$^{J}_{S}$	[4.4]^{S}	(4.4)$^{S}_{P}$	S	S	5.0	4.9	5.5	5.5	5.2	4.6	(3.4)$^{J}_{S}$	(2.4)^{S}	(2.3)$^{J}_{S}$
14	(2.1)$^{F}_{S}$	A^{S}	A^{S}	A^{S}	(2.1)$^{J}_{S}$	3.2	3.7	(4.0)$^{J}_{S}$	4.4	5.2	(4.7)$^{J}_{S}$	5.0	5.2^{H}	5.0	4.8^{H}	4.4	4.5	4.9	[5.4]^{A}	5.3	4.9	3.9	3.3	(2.1)$^{A}_{F}$
15	(2.6)^{F}	(2.4)$^{F}_{S}$	(2.2)$^{F}_{S}$	2.2^{H}	(2.4)$^{F}_{S}$	3.5	4.1	(4.5)^{S}	5.0	5.3	<4.1^{G}	(4.5)^{S}	5.2	4.7	[4.8]^{C}	4.7	4.5	(4.8)^{S}	5.6	5.4	(5.2)^{S}	(4.4)$^{S}_{P}$	3.9	(3.0)$^{J}_{S}$
16	[2.6]^{A}	(2.2)$^{J}_{S}$	A	A	A	3.7	3.8	4.3	4.7	[4.7]^{C}	5.4	5.3	5.0	A	A	4.9	[4.5]^{C}	[4.6]^{C}	5.0	5.3	5.3	(4.1)$^{F}_{S}$	(4.5)^{S}	3.4^{F}
17	(2.5)$^{J}_{S}$	(1.9)$^{J}_{S}$	(1.7)$^{J}_{S}$	(1.7)$^{F}_{S}$	2.3	3.3^{H}	4.0	4.4	4.3	[4.8]^{A}	[4.8]^{A}	4.8	[4.6]^{A}	4.6^{H}	4.5	4.5	4.6	4.6	[5.0]^{A}	5.5	5.7	4.6	(3.8)$^{F}_{S}$	3.7$^{F}_{S}$
18	3.2^{F}	3.0	(2.4)$^{F}_{S}$	2.4	2.4	3.3	3.9	4.3	4.5	5.1	5.2	5.2	(4.9)$^{J}_{S}$	[4.8]^{A}	4.7	5.0^{H}	5.5	5.3	5.5	6.2	5.8	(4.6)^{S}	(3.4)$^{F}_{S}$	(3.1)$^{J}_{S}$
19	(2.7)$^{F}_{S}$	3.1	(2.2)$^{F}_{S}$	(2.4)$^{F}_{H}$	2.3$^{F}_{S}$	3.2$^{F}_{S}$	(4.0)^{S}	(4.3)^{S}	4.3	4.3	5.0	(4.6)^{S}	(4.5)^{S}	4.4	(4.8)$^{S}_{P}$	4.4	(4.3)^{A}	4.3	4.6	4.9	5.2	4.7	3.7	3.5$^{F}_{S}$
20	(3.3)$^{F}_{S}$	(3.3)$^{F}_{S}$	2.7	(2.0)$^{J}_{S}$	2.3	[3.2]^{S}	[3.8]^{A}	4.2	[4.4]^{A}	4.6	4.9	4.9	<4.2^{G}	4.5	4.8	4.4	4.3	4.5	5.0	5.3	5.2	4.6$^{F}_{S}$	4.1	3.5
21	2.9^{F}	(2.4)$^{F}_{S}$	2.4	(2.0)$^{J}_{S}$	2.4	(3.4)$^{J}_{S}$	3.7	4.2	5.1	(4.6)^{S}	[4.8]^{A}	5.0	4.7	4.8	4.5	4.7	4.7	4.9	5.4	5.6	5.8	(5.0)^{S}	4.4^{S}	3.7^{F}
22	(3.4)$^{F}_{S}$	(3.2)$^{F}_{S}$	(2.2)$^{F}_{S}$	1.8	(2.2)^{A}	3.2^{H}	3.7^{H}	4.2	4.2	(4.3)$^{D}_{S}$	4.8	4.8	[4.6]^{A}	4.5	(4.2)$^{D}_{S}$	[4.2]^{A}	4.4	4.8	(5.4)$^{J}_{A}$	[4.9]^{A}	(4.5)$^{J}_{S}$	(3.9)$^{J}_{A}$	(3.4)^{A}	3.1
23	(2.3)$^{F}_{S}$	(1.9)$^{J}_{F}$	[1.9]$^{A}_{S}$	(1.9)$^{J}_{H}$	2.2	3.2	3.8	4.1	4.3	[4.6]^{S}	4.6	4.5	4.6	4.4	4.4	4.5	4.8	5.2	5.2	5.3	5.4	4.3	3.0	(2.6)^{S}
24	(2.4)$^{J}_{S}$	(2.2)$^{J}_{S}$	(2.2)$^{J}_{S}$	(2.1)$^{J}_{S}$	2.3	3.4	4.0	[4.2]$^{A}_{S}$	[4.4]^{S}	4.9	4.5	4.6	[4.5]^{S}	4.7	4.7	4.7	4.3	4.5	4.6	5.1	(5.3)$^{S}_{P}$	3.7^{F}	2.9$^{F}_{S}$	2.9
25	(2.7)$^{J}_{S}$	2.4	(2.1)$^{F}_{S}$	(1.9)^{S}	2.2^{F}	3.7^{H}	4.5	4.6	4.8^{H}	4.5^{H}	5.0	5.4	[5.4]^{C}	5.3	5.0	4.5	(4.2)^{A}	4.8	(4.9)$^{J}_{A}$	5.1	5.1	[4.5]^{A}	(3.1)$^{F}_{S}$	(2.6)$^{J}_{S}$
26	A	A	A	A	2.3	3.7	4.3	4.7	A	A	A	A	A	A	A	5.5	5.8	C	C	5.2	5.3	4.2^{S}	3.8	3.7
27	3.1	(2.7)$^{J}_{S}$	(2.5)^{S}	(2.2)^{S}	2.4	3.5	3.9	<3.8^{G}	(4.7)^{A}	5.1	5.5	5.2	4.7	4.6	4.7	4.8	4.8	4.5	4.5	5.2	5.8	5.4	4.3	4.2
28	3.7	(3.3)$^{J}_{S}$	3.2	(2.3)$^{F}_{S}$	2.3	(3.0)$^{J}_{S}$	3.7	3.9	<3.8^{G}	4.5	<4.1$^{G}_{K}$	<4.1$^{G}_{K}$	<4.1$^{G}_{K}$	A^{K}	A^{K}	A^{K}	A^{K}	A^{K}	[4.4]$^{A}_{S}$	4.4	[4.2]^{A}	(3.5)^{S}	(3.0)$^{J}_{S}$	(2.5)$^{F}_{S}$
29	[2.2]$^{A}_{S}$	2.0$^{F}_{S}$	S	A	2.0	2.9	<3.5^{G}	4.2	4.5	4.4	(4.3)^{S}	4.6	4.6	[4.6]$^{A}_{S}$	4.7	4.6	4.5	4.7	[5.0]^{A}	(5.4)^{S}	(5.0)^{S}	4.6	(4.0)$^{F}_{S}$	3.7$^{F}_{S}$
30	(3.1)^{S}	(2.5)$^{J}_{S}$	(2.2)$^{F}_{S}$	(1.7)$^{J}_{S}$	(2.2)$^{F}_{S}$	(3.2)$^{J}_{S}$	4.2	4.3	4.6	(4.3)^{S}	4.7	5.0	4.7	4.6	4.7	4.6	4.7	4.6	5.0	5.2	5.3	5.1	3.9	3.5
31																								
Median	(2.9)	(2.5)	(2.3)	(2.0)	2.3	3.3	4.0	4.2	4.6	4.8	4.8	4.8	4.7	4.8	4.8	4.7	4.7	4.9	5.0	5.3	5.2	4.3	3.5	3.2
Count	24	24	25	24	28	29	27	29	27	28	28	27	27	25	26	27	29	28	28	29	30	30	29	27

Sweep 1.0 Mc to 25.0 Mc In 0.25 min

Manual ☐ Automatic ☒

TABLE 76

Central Radio Propogation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), June (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W., J.W.P., J.J.S.

Lat. 38.7°N, Long 77.1°W — 75° W Meon Time

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							230	220	210	190 H	200 F	190 H	180 H	200	220	220	220	A	A					
2							220	(230) A	A	A	A	A	A	A	200 H	220	220	220	230 H					
3							A	220	240	A	A	190 H	200 H	200 H	180 H	220	230	230	A					
4							240 H	[220] A	210 H	200	200 H	180 H	210 H	180 H	(240) A	240	210 H	220	220					
5							210	210 H	190	180 H	200	[200] A	210 H	200 H	200	[210] A	220	230 H	A					
6							210 H	A	A	210	200	230	180 H	180 H	220	210	A	A	A					
7							210	210	A	A	A	A	A	A	220	A	A	A	A					
8							A	A	A	A	A	A	190 H	210 H	210 H	220	240	A	A					
9						230	250	[230] A	210	A	A	A	A	210 H	[200] A	180 H	190 H	230 H	A					
10							210	210	220 H	A	A	A	A	A	190	210 H	(220) A	220 H	200 H					
11							A	A	(220) A	[230] A	240 H	180 H	180 H	220 H	(200) A	[200] A	210	(230) A	A					
12							220 H	A	A	A	A	A	A	A	240	210	230	A	A	260				
13						240	[230] A	220	(240) A	200	190 H	200 H	200 H	180 H	220	A	A	A	A					
14							A	A	210 S	(220) A	180 H	190 H	200 H	210 H	210 H	(220) A	210 H	A	A					
15							240	240	220	210 H	180	180 H	180 H	A	C	C	170 H	A	A					
16							220	230	230 H	(220) A	[220] A	220	210 H	180 H	[200] A	(210) A	(220) A	230	A					
17							240 H	230 H	A	A	A	A	200	[210] A	220	200	220	A	A					
18							220 H	(240) A	210	220 A	A	A	200 H	A	A	210	230	250 H	A	A				
19						Q	210	220 H	200 H	200	210	170 H	200 H	200	170 H	210 H	[230] A	250 H	A	A				
20						250	260 H	A	A	(270) A	200 H	180 H	180 H	180 H	[180] A	[220] A	210 H	230	230	A				
21						Q	A	200 H	250 H	210	A	A	A	A	A	A	190 H	A	A	A				
22						Q	240	230	230	220 H	210	170 H	(210) A	190 H	180 H	200 H	210	240 H	A	A				
23						Q	230	210 H	220	210	190	190	220	200	[220] A	220	210	(230) A	240	240				
24						220	230	210	210	[200] A	190	200 H	190	200 H	210 H	200 H	200	220	240	A				
25						Q	220	200 H	200 H	(200) A	200 H	(200) A	200	210	190	180 H	(230) A	(230) A	A	A				
26						Q	A	A	A	A	A	A	A	A	A	A	(220) F	C	C	C				
27						230 H	220 H	A	A	A	190 H	180 H	200 H	200	180 H	190 H	[210] A	230 H	200 H	240				
28						Q	220 H	220	230 H	210	220	[210] A K	200 K	A K	A K	A K	A K	A K	A K	A				
29						Q	200 H	[220] A	(230) A	200 H	190	190 H	190 H	A	A	A	210 H	240	A	A				
30						Q	250	220	210	200 H	200 H	190 H	190 H	(180) A	A	A	200 H	210	220	250				
31																								
Median						230	220	220	220	210	200	190	200	200	200	210	220	230	220	—				
Count						5	24	22	21	20	19	20	23	20	23	22	26	18	8	4				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 77

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

foF1 (Characteristic), Mc (Unit), June (Month), 1954

IONOSPHERIC DATA

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Lang 77.1°W

75° W Mean Time

Scaled by E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.J.S., J.W.P.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							3.2	3.6	3.8	4.1 H	4.2 H	4.2 H	4.3 H	4.2	4.2	4.1	3.9	A	A					
2							3.3	3.6	A	A	A	A	A	A	4.1 H	4.0 H	3.9 H	3.6 H	3.6 H					
3							L	3.6	3.4	[4.0] A	4.1	4.2 H	4.3 H	4.2 H	4.2 H	4.0	3.8	3.7	3.3					
4							3.2 H	[3.6] A	4.0 H	4.1	4.1 H	4.2 H	4.2 H	4.2 H	4.2	4.0	4.0 H	3.8	2.7					
5							3.2	3.6 H	3.9	4.0 H	4.1	4.2	4.2 H	4.2 H	4.1	4.0	3.8	3.6 H	3.4					
6							3.3 H	3.7	[3.8] A	4.0	4.1 H	4.2 H	4.2 H	4.2 H	4.2	(3.7) S	[3.8] A	3.7	A					
7							L	3.7	[3.8] A	4.0 H	A	A	A	4.1	(4.2) S	A	A	A	A					
8							A	3.6	A	A	A	4.2	4.3 H	4.3 H	4.2 H	4.0	3.7	A	A					
9						L	3.5	3.7	(3.4) A	[4.0] A	4.1 S	A	A	4.2 H	4.2 H	4.0 H	3.7 H	3.7 H	3.5					
10							3.3	3.4	3.5 H	3.9	A	A	(4.2) A	4.1	4.0	3.9 H	(3.8) H	3.6 H	(3.3) H					
11							A	A	3.6 S	[3.8] A	4.1 H	4.2 H	4.1 H	4.1 H	4.1 H	[3.7] A	3.7 F	3.6	3.3					
12							3.3 H	A	A	A	A	A	A	A	4.2	4.0 H	3.8	3.5	A	L				
13						L	3.3	3.6	3.8	3.9	4.1 H	4.1 H	4.1 H	4.0	(4.1) S	A	A	A	L					
14							A	A	3.8 S	3.9 S	4.0 H	(4.1) P	4.2 H	4.2 H	4.1 H	(3.4) S	3.9 H	A	A					
15							3.1	3.6 H	3.9 S	4.0 H	4.1	4.2 H	4.2 H	4.2 H	C	C	(3.7) S	A	A					
16							3.3	3.7	3.9 H	4.0 H	[4.1] A	4.2 H	4.2 H	4.1 H	[4.0] A	4.0 H	3.9 H	(3.8) S	A					
17							3.2 H	3.7 H	3.8	4.0	A	A	4.2	[4.1] A	4.0	4.0	3.9 S	[3.6] A	A					
18							3.3 H	3.6	3.7	4.0	A	A	4.2 H	A	A	4.0 H	4.0	3.8 H	A	A				
19						Q	3.2	(3.7) S	3.8 S	(4.0) S	4.1	4.2 H	4.2 H	4.2	4.1 H	4.1 H	3.7	3.7 H	3.3	A				
20						2.7	3.5 H	A	A	4.0	4.1 H	4.1 H	4.3 H	4.2 H	[4.2] A	4.0 H	3.9 H	3.6	3.3	L				
21						Q	(3.0) A	3.5 H	3.9 H	4.0	4.2	4.2	A	A	A	A	3.8 F	(3.7) A	A	A				
22						Q	(3.2) S	3.5 H	3.7	4.0 H	4.1	4.1 H	(4.2) A	4.1 H	(4.1) P	4.0 H	3.8	3.6 H	A	A				
23						Q	3.5	3.5 H	3.9	4.1	4.1	4.1	4.1 H	4.2	[4.0] A	4.1 H	3.9 H	3.7	3.3	L				
24						L	3.5	3.6	3.8	4.1 H	4.1 S	4.2 H	4.3	4.2 H	4.1 H	4.0 H	3.9	3.6	3.3	A				
25						Q	3.3	3.6 H	3.9 H	(4.0) S	4.1 H	4.2	4.2	4.2	4.0	4.0 H	3.7	(3.7) A	A	A				
26						Q	A	3.8	A	A	A	A	A	A	A	A	(3.9) S	C	C	C				
27						L	L	A	A	A	4.1 H	4.2 H	(4.1) S	4.1	4.0 H	4.0 H	(3.8) S	3.8 H	3.5 H	L				
28						Q	3.1 H	3.5	3.8 H	3.9	4.0	[4.0] A K	4.1 K	A K	A K	A K	A K	A K	3.7 K	A				
29						Q	3.1 H	3.5	3.8	4.0 H	4.1	4.2 H	4.2 H	A	A	A	3.8 H	3.7	A	A				
30						Q	(2.3) S	3.6	3.8	4.2 H	4.1 H	4.2 H	4.2 H	4.2 H	A	A	3.9 H	3.7	3.4	2.6) S				
31																								
Median						—	3.3	3.6	3.8	4.0	4.1	4.2	4.2	4.2	4.1	4.0	3.9	3.7	3.3	—				
Count						1	23	25	24	25	22	22	24	23	23	22	27	22	14	1				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 78

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1948

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), June (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							120	110	110	100	100	100	100	100	100	100	100	110	110					
2							110	100	110	110	100	100	100	100	100	100	110	110	110					
3							110	110	110	100	100	100	100	100	100	100	110	110	110					
4							110 H	110	110 H	100	100	100	(100) B	100 B	110	100 H	100	110 H	120					
5							110	110 H	110	100 H	100	100	100	100	100	100	(110) B	110	110					
6							120 H	110 H	110 H	100 H	100 H	100 H	100	100	110 B	(110) B	110	110	110					
7							120 H	110 H	100	100	100	100	100	100	100	100	110 H	110	110					
8							110	100	100	100	100	100	100	100	110	100	100	110	110					
9						S	110	100	100	100	100	100	100	100	100	100	100	[100] B	110					
10							110	110	100 H	110	100	100	100	100	110	100	(110) B	110	110					
11							A	A	100	100	100	100	100	100	100 H	110	110	110	[110] B					
12							110	110 H	110	100 H	100 H	100	100	[100] A	100	110	110	110	(110) A	S				
13						S	110	110	110	(110) B	100	[100] B	(100) B	(110) B	110	100	(100) S	(110) S	100 S					
14							110	110	100	(110) B	(110) B	(110) B	100	100	100	100	110	[110] A	110					
15							120 H	110	110	110	110	100	100	110	C	C	110	110	110					
16							110	110	110	110	[110] B	(110) B	100	100	(110) A	100	(110) B	(100) B	110					
17							120 H	110 H	110	110	(100) B	100	(100) B	A	A	A	A	110 H	B					
18							110	100	110	110	110	110	110	110	110	110	110	110	110	A				
19						S	110	110	110	110	100	100	100	(110) B	(110) B	110 H	110	110	120	S				
20						S	120	110	110	100	100	100	110	100	100	100 B	110	(110) B	B	S				
21						S	110 H	110	(110) A	110	100 H	100	100 H	110	100	100	110	110 H	120 H	S				
22						S	110	110	110	110	110	110	110	110	110	110	110	110	(120) S	A				
23						S	(110) S	110 H	110	100	100 H	110	110	110	110	110	110	110	A	S				
24						S	120	110	110	110	100	100	100	100	100	110	110	110	110 H	S				
25						S	110	110	100	100	100	100	100	100	100	100	100 H	100	110	S				
26						S	110	110	100	100	100	100	100	100	100	100	S	C	C	C				
27						S	110	110	100	100	100	100 H	100	100	[100] A	100 H	130 H	100 S	S	S				
28						S	120	110	110	110	110	110 K	110 K	110 K	110 K	110 K	100 K	110 K	A K	S				
29						S	120 H	110	100 H	100 H	100	100	100	(100) S	(100) A	100	110	110	120	A				
30						S	S	100	100	100	100	100	100	100	100	100	110	110	110	S				
31																								
Median							110	110	110	100	100	100	100	100	100	100	110	110	110					
Count							28	29	30	30	30	30	30	29	28	28	28	29	24					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 79

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

f°E (Characteristic), Mc (Unit), June (Month), 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W — 75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P. J.J.S.

Calculated by: E.J.W., J.W.P. J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1							(1.9)A	2.5	2.7	2.8	2.9	A	A	3.3	3.3	3.2	2.9	2.5	2.1							
2							1.8	2.2	2.6	2.7	(2.7)A	A	A	A	3.0H	3.0	2.8	2.5	2.1H							
3							1.8	2.4	2.7	2.9	A	A	A	A	A	3.1H	(2.9)P	2.6	2.1H							
4							2.0H	2.5	2.8H	2.9	3.0	[3.1]A	3.2	3.2H	3.1	3.0H	2.9	2.6H	2.2H							
5							A	2.5H	2.8	2.9H	3.1	(3.2)P	3.2	3.2H	3.1	[3.0]B	2.8H	2.6H	2.1							
6							1.9H	2.5H	2.8H	3.0H	3.1H	3.1H	3.1	3.2	3.0	(3.0)B	2.9	2.6	(2.2)P							
7							1.9H	2.4H	2.7	2.8H	3.1H	3.3H	(3.2)A	3.2H	3.3H	3.0	2.8H	2.6	2.3							
8							1.9	2.5	2.7	[2.8]A	3.0	A	A	A	A	S	(2.8)P	2.6	(2.2)S							
9						S	2.0H	[2.4]S	2.8	(2.9)A	3.1	A	A	A	3.2	3.0H	2.9H	2.5H	A							
10							1.9	2.5	(2.6)H	2.8	(2.9)P	A	A	3.1	3.1	(3.0)A	(2.9)P	2.4	2.0							
11							A	A	2.7H	2.8	[3.0]A	3.1	(3.2)P	(3.1)P	3.2H	3.1	2.8H	2.6	[2.1]B							
12							2.1	2.4H	2.7	3.0H	3.1H	3.0	3.1	[3.2]A	3.3	3.2	3.2	A	A	S						
13						S	S	(2.4)S	2.8	3.0	A	B	A	A	3.2H	(3.1)S	2.9	(2.5)S	S							
14							2.1	2.4	[2.6]A	2.8	3.0	3.0	[3.1]A	3.2	(3.2)P	3.2H	(2.7)P	[2.4]A	2.2H							
15							2.1H	(2.4)P	2.8	2.9	[3.0]A	(3.1)P	3.2	A	C	C	(3.0)H	(2.6)S	2.1							
16							A	2.4	2.8	3.0	[3.1]B	3.2	A	A	A	A	A	2.5	2.2							
17							2.1H	2.4H	2.8	2.9	3.1	(3.2)P	A	A	A	A	A	2.7H	B							
18							2.1	(2.5)S	2.8H	3.1	3.1H	(3.1)P	3.2H	A	A	3.2H	2.9	2.6	2.2	A						
19						S	1.9	2.5	2.8H	3.0	3.1	3.1	A	A	3.2	3.1H	2.9	2.5S	2.2	S						
20						S	(2.2)P	2.5S	2.7	2.8	3.1H	3.2	(3.1)A	[2.9]A	2.7	2.4	[2.3]S	(2.2)B	B	S						
21						S	A	2.4	A	A	3.1H	3.1	3.2H	3.1	(3.0)A	(2.6)S	2.8	2.5H	2.1H	S						
22						S	2.1H	2.3	A	A	(3.0)P	[3.1]A	(3.1)P	(3.1)B	(3.0)P	[2.9]A	2.8H	2.5	(2.1)P	A						
23						S	1.9	2.4H	(2.7)P	2.9	3.0H	(3.0)P	[3.1]A	3.2H	(3.2)P	(3.1)P	(2.9)P	2.5	A	S						
24						S	1.9	2.5S	2.7	3.0	3.0	[3.2]A	3.2	(3.2)A	3.2	3.1	(2.8)P	2.6	2.2H	S						
25						S	1.8	[2.2]A	(2.5)S	2.8	[3.0]A	3.1	(3.2)A	3.1	3.0	2.9	2.8H	2.8	2.2	S						
26						S	2.2	(2.5)A	2.8	3.1	3.2H	[3.2]A	3.2	(3.6)A	(3.1)P	A	S	C	C	C						
27						S	2.0H	(2.5)S	2.7H	2.9	2.9	(3.0)S	3.1	(3.1)P	(3.1)P	3.1H	2.8H	(2.6)S	S	S						
28						S	(1.8)A	(2.4)S	2.7	2.9	3.1	(3.1)PK	[3.1]BK	(3.1)PK	3.2HK	3.0HK	2.8K	(2.4)SK	AK	S						
29						S	2.2H	2.3	(2.7)S	2.8H	A	A	A	A	A	A	A	2.7	2.3	A						
30						S	S	2.4	2.8	(3.0)A	A	A	A	A	A	3.0H	3.0	2.6	2.3	S						
31																										
Median							2.0	2.4	2.7	2.9	3.0	(3.1)	3.2	3.2	3.2	3.0	2.8	2.6	2.2							
Count							24	29	28*	28	26	21	18	18	22	24	26	28	21							

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 80

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc-Km (Unit), June (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long. 77.1° W

75° W Mean Time

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	2.2y 130	3.8 120	3.9 110	4.0 110	4.0 110	5.6 100	5.4 100	G	G	4.4y 110	G	5.8 120	7.1 110	(9.3)5 110	3.2 110	3.3 110	3.6 110	E
2	3.0 100	4.0 100	3.7 100	3.2 100	3.1 100	4.0 100	3.0y 120	4.0 110	9.8 H 100	8.6 110	13.0 100	13.0 100	9.6 110	10.5 110	4.7 110	4.1 130	4.1 120	3.0 120	3.1 130	4.05 120	E	5.9 110	3.7 120	3.9 110
3	6.6 110	4.2 110	4.1 M 110	E	2.7 100	2.6 110	4.5 110	4.3 110	3.9 110	6.6 120	6.2 100	3.1 100	5.2 100	5.2 100	3.9 160	4.9 120	4.2 120	G	3.8 120	5.8 110	3.8 110	2.1 110	2.9 110	3.3 110
4	6.2 100	5.0 100	3.9 110	7.2 H 110	3.9 120	E	3.3 130	4.7 110	4.0 120	4.9 110	G	3.2 110	G	G	3.7 140	3.5 120	G	2.9 110	4.1 120	5.1 110	4.3 110	3.2y 110	E	3.0 100
5	3.7 110	3.2 110	E	2.4 110	3.8 100	3.4 110	1.9 110	3.8 120	3.9 120	3.1 120	3.8 130	4.9 120	4.6 120	3.9 120	3.6 130	4.6 120	3.2 120	4.0 120	5.4 110	3.7 110	5.8 110	5.6 110	3.9 110	E
6	3.0 120	5.4 130	4.0 120	4.5 110	4.5 110	2.6 130	3.9 130	4.3 120	6.8 120	4.3 120	4.3 110	4.7 110	4.7 110	3.5 110	3.4 120	3.5 120	4.7 130	4.5 120	4.7 120	3.5 120	2.9 110	3.3 110	4.0 110	7.4 110
7	4.7 110	4.2 110	1.7 110	3.0 110	2.6 110	E	3.1 120	4.7 H 110	5.3 110	5.8 110	5.2 110	7.8 110	7.8 H 110	5.2 110	4.9 130	10.5 120	7.6 120	6.0 120	8.4 110	9.0 110	8.0 110	7.4 110	5.4 100	3.4 100
8	3.8 100	3.8 100	3.7 100 H	5.0 H 110	4.3 100	E	5.2 110	7.2 110	10.2 110	7.6 110	10.5Y 110	4.9 100	5.0 100	4.3 100	3.4 100	3.0 110	G	5.2 120	5.2 110	7.2 110	7.6 110	5.6 110	3.9 110	4.8 100
9	4.7 110	4.0 110	2.5 110	3.1 110	E	3.4 120	4.0 120	4.9 120	5.0 110	9.8 110	10.5 110	5.5 100	8.0 110	4.9 100	3.4 130	G	G	G	5.4 110	6.4 110	3.6 110	E	2.6 110	E
10	E	E	E	E	E	2.8 120	3.6 120	G	2.9 120	4.8 110	10.2 110	5.4 110	7.5Y 110 H	4.6Y 120	4.3Y 120	3.7 110 M	3.2 130	G	3.7 120	5.0 110	5.0 110	4.9Y 110	4.6 110	3.1 (110)S
11	(2.9)S 110	4.0 120	3.0 120	E	4.9 110	3.8 110	5.0 110	5.7 110	5.0 110	7.5 110	3.3 110	4.0 110	4.0 120	4.8 120	21.0 120	9.8 110	4.5 110	4.0 120	5.2 110	7.0 110	12.0 110	5.9 100	8.4 110	6.8 110
12	6.8 110	6.5 110	5.0 110	4.8 100	3.6 110	4.2 110	4.8 110	6.3 110	7.4 110	6.0 110	9.0 110	5.4 110	8.0 100	5.6 110	G	G	G	5.0 110	4.2 110	4.1 100	6.0 100	4.5 100	4.3 110	6.4 110
13	4.4 110	5.2 100	6.7 110	4.7 120	4.0 110	G	4.2 110	4.8 110	4.2 110	4.3 110	4.0 110	3.3 100	4.6 110	4.0 110	4.0 130	9.0 110	5.6 120	7.2 110	7.5 110	7.0 110	E	5.4 110	E	3.4 110
14	E	5.6 120	8.0 120	5.6 110	3.9 110	3.0 100	4.4 110	6.0 110	4.4 110	6.0Y 110	3.2Y 110	3.2 110	4.2 100	G	4.3 130	5.2 120	3.7 110	5.0 110	8.0 110	5.2 110	5.8 110	4.2 120	4.2 110	3.9 110
15	3.0 110	E	E	E	E	E	G	2.9 120	4.2 110	4.0 110	3.3 110	G	G	3.3 110	C	C	G	5.6 120	6.4 110	4.5 110	3.7 110	5.6 110	5.6 110	2.9 110
16	3.2 110	4.8 100	3.1 110	4.0 100	4.8 100	2.7 130	2.3 130	3.7 120	4.2 120	4.7 110	5.3 110	3.6 110	6.6 100	7.0 110	7.0 100	4.5 100	4.8 100	5.0 120	5.0 120	5.0 120	2.8 110	4.9S 120	2.4 110	2.6 120
17	3.2 110	2.4 110	E	4.0 110	2.7 110	E	2.3 130	3.9 120	4.6 120	4.9 120	10.5 110	9.2 110	4.8 110	6.8 100	4.3 100	4.0 110	5.0 110	6.6 120	6.5 120	7.0 120	7.0 110	4.8 120	5.8 110	4.3 110
18	3.0 100	E	3.0 100	E	2.9 100	E	3.5 120	4.5 110	4.6 110	5.3 110	5.0 110	7.2 110	5.3 110	6.0 110	7.4 110	G	G	4.0 120	5.4 110	6.8 110	4.3 110	7.8 110	4.9 110	4.9 110
19	3.0 110	5.3 110	3.3 100	3.3 100	3.8H 100	G	3.3 120	6.4 120	4.5 120	4.9 110	4.3 110	4.2y 100	4.4 100	4.4 110	3.8 110	12.0 120	7.0 120	6.6 120	4.4 120	4.6 110	5.8 110	6.4 110	4.2y 110	5.3 110
20	3.9y 110	3.4 100	E	2.2 120	E	G	3.4 120	7.2 110	6.3 110	7.0 H 110	4.6 110	3.2 110	4.8 110	8.6 110	5.0 100	4.6 100	3.8 110	3.9 110	3.6 120	3.5 120	3.3 110	8.5 110	4.1 110	4.4 110
21	2.8 110	E	E	2.7 120	E	3.6 110	4.5 110 H	3.5 120	4.7 110	4.1 110	4.7 120	5.0 110	7.8 110	7.6 110	8.0 110	10.8 110	G	4.6 130	4.7 120	5.4 120	5.9 110	5.8 110	4.8S 110	8.6 110
22	5.0 110	3.0 110	E	4.6 110	4.2 110	7.0 100 H	4.3 120	4.7 120	3.6y 120	3.8Y 110	4.0y 110	4.7 110	5.6 110	6.8Y 100	4.1Y 110	4.6 110	G	G	6.4 120	7.6 120	4.2 120	6.6y 120	2.9 120	5.0y 120
23	E	E	E	4.4y 120 H	E	G	G	G	3.9 130	4.0 120	4.3 110	5.1 110	4.1 110	G	5.0 130	4.2 120	7.0 120	7.4 110	5.8 110	G	1.9 110	3.1 110	2.7 110	E
24	E	E	E	E	E	G	3.0 120	4.8 120	4.5 110	4.7 110	4.0 110	4.4 100	3.7 110	3.7 110	3.7 110	3.9 110	G	4.0 130	3.9 120	4.5 120	2.3 120	3.2 110	3.7 110	4.3 110
25	4.2 100	3.9 100	E	E	E	4.3 100	4.6 110	3.9 110	4.2 110	4.5 110	4.2 100	4.8 110	4.6 110	4.9 110	4.2 110	8.8 120	4.3 140	5.3 120	5.8 110	8.0Y 110	5.5 100	8.4 110	11.5 110	6.6 110
26	8.0 100	5.6 100	4.3 100	4.0 100	3.9 100	3.7 100	7.0 110	5.0 110	7.0 110	10.0 110	15.0 110	14.0 100	12.0 100	11.2 100	7.7 110	7.4 100	4.8 110	C	C	C	6.6 110	4.2 100	7.2 100	7.2 100
27	2.9 110	E	E	E	E	4.2 100	3.2 140	6.0 120	10.0 110	7.6 H 110	3.4 110	4.3 110	3.3 120	3.9 130	3.5 100	3.9 140	4.8 120	5.2 120	4.8Y 110	(3.1) S 120	5.4 110	4.5 110	3.0 110	E
28	E	E	E	E	E	G	3.1 120	2.6 120	3.0 120	5.6 110	4.5 110	7.4 110	4.3 110	5.2 120	12.5 110	12.5 110	12.0 110	11.5 110	11.5 110	7.4 110	7.2 100	4.6 110	4.2 110	4.9 100
29	(3.2) S (110)	4.3 100	3.9 110	4.5 110	5.0 120	7.4 120	3.8 120	4.8 120	4.3 120	4.8 110	5.8 100	6.6 H 100	6.6 100	5.6 100	6.2 100	7.2 100	2.9 110	4.0 120	5.6 120	10.8 S 110	5.6 120	5.6 110	2.2 110	2.1 110
30	2.2 100	1.9 110	E	1.9Y 110	(3.3) S 110	G	(3.3) S 110	3.9 110	4.1 110	4.3 110	4.3 110	4.3 100	4.2 100	5.8 100	7.1 100	10.5 S 110	8.2 110	4.4 110	3.1 120	G	E	E	E	E
31																								
Median	3.1	3.8	3.1	3.0	2.8	2.6	3.4	4.6	4.4	4.9	4.4	4.8	4.7	4.7	4.3	4.6	4.0	4.6	5.2	5.1	4.6	4.9	4.0	3.9
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	29	29	29	30	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 81

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

IONOSPHERIC DATA

(M1500) F2 (Characteristic) ____ (Unit) June (Month) 1954

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: E.J.W., J.W.P., J.J.S.

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.1)$^{P}_{S}$	(2.0)$^{P}_{S}$	J^{S}	J^{S}	(2.0)$^{P}_{S}$	2.3	1.9	2.1	1.9^{H}	2.1^{H}	2.0	2.1	S	2.0	2.0	2.1	1.9	2.1	2.1	2.3	2.4	2.3	2.1	2.0
2	2.1	A	(2.0)^{S}	J^{S}	A^{S}	2.4	2.3	2.2	1.9	2.3	2.0	2.1	2.0	A	1.9^{H}	2.0^{H}	2.0	2.1	2.1	2.2	2.3	2.3	2.2^{F}	A
3	A	2.2	A^{S}	(2.3)$^{F}_{S}$	(2.3)$^{F}_{S}$	(2.4)$^{S}_{H}$	2.5^{H}	2.1	1.9^{H}	A	2.1	2.1^{H}	2.0^{H}	2.0	1.9$^{A}_{H}$	2.0	1.9	2.0	2.2	(2.2)^{A}	2.2	2.2	2.2	2.3^{F}
4	A	2.1^{F}	2.2	A	(2.0)$^{P}_{S}$	(2.4)$^{F}_{S}$	2.3^{H}	2.3	2.1	(2.1)^{S}	2.0	1.9	2.1	1.9	1.9	2.1	2.1	2.2	2.2	2.3	2.2	2.2	S	(2.2)$^{J}_{S}$
5	(2.2)$^{F}_{S}$	F^{S}	(2.2)$^{F}_{S}$	(2.3)$^{F}_{S}$	(2.5)$^{F}_{S}$	2.4^{F}	2.3^{F}	2.4^{F}	(2.4)^{P}	2.0	2.0	2.2	1.9	1.8^{H}	2.0	2.1	2.0	2.1	2.1	(2.2)^{S}	2.2	(2.3)^{S}	2.2^{F}	(2.3)^{F}
6	2.3^{F}	(2.3)^{F}	(2.3)$^{F}_{S}$	2.2^{F}	2.3^{F}	2.2	2.1^{H}	2.1^{H}	A	1.8	2.2	2.0^{H}	1.7	2.0^{H}	2.0	2.1	2.0	2.1	2.3	2.2	2.2	2.3	2.2^{F}	2.0
7	(2.2)$^{A}_{F}$	A	(2.3)$^{F}_{S}$	2.2^{F}	2.2^{F}	2.4^{H}	2.5	2.5	2.0^{H}	1.9	2.2	A	2.1	(2.1)^{S}	2.1	A	1.9	2.0	A	A	2.3	2.2	2.1	2.3^{F}
8	2.1	(2.3)^{F}	2.3^{F}	(2.3)^{F}	S	2.3	A	2.2	A	A	A	1.5	1.9	1.9	(1.9)^{S}	1.7	1.8	2.0	2.3	2.3	A	A	2.1	(2.1)^{A}
9	2.2^{F}	2.3	2.3	2.1^{F}	2.3^{F}	2.3^{H}	(2.2)$^{D}_{H}$	2.2	1.9^{H}	A	1.9^{H}	2.0	2.0	2.2	2.1	2.0	2.0	2.1	2.1	A	2.2	(2.3)^{S}	2.3	(2.3)$^{F}_{S}$
10	2.2^{F}	2.3	(1.9)$^{F}_{S}$	2.1	2.0	2.3	1.8	(2.2)$^{S}_{D}$	2.3^{H}	A	A	A	A	G	1.5	(1.8)$^{D}_{S}$	2.0	(1.9)^{H}	2.1	2.2	2.2	2.2	A^{S}	S
11	S	S	A	(2.1)$^{D}_{S}$	A	2.3	A	A	2.3	A	(2.4)^{D}	(2.0)$^{S}_{D}$	(1.9)^{S}	J^{S}	1.9	A	1.9	2.2	(2.0)$^{S}_{D}$	A^{S}	A	(2.3)^{S}	(2.3)$^{F}_{S}$	A
12	A	A	A	(2.2)$^{D}_{S}$	(2.3)$^{F}_{S}$	(2.4)^{F}	2.3$^{F}_{S}$	A	A	A	2.0	2.1	A	J^{A}	2.2	2.0	2.0^{H}	2.3	2.1	2.2	2.3	2.2	(2.2)$^{F}_{S}$	(2.2)$^{F}_{S}$
13	(2.3)$^{F}_{S}$	A	A^{S}	(2.3)$^{F}_{S}$	(2.2)^{S}	2.3	2.0	J^{S}	J^{S}	(1.8)^{S}	1.7	S	(1.9)^{S}	S	S	A	(2.0)^{S}	A	2.1	2.3	(2.3)^{S}	2.2	2.3	2.1
14	(2.1)^{S}	A^{S}	A^{S}	(2.2)$^{F}_{S}$	A^{S}	(2.4)^{S}	A	A	2.0^{S}	2.1	1.7	1.9	2.2^{H}	2.0	2.2	1.8^{H}	(1.9)$^{D}_{S}$	2.1	A	2.3	2.2^{F}	2.3	2.2	(2.1)$^{F}_{S}$
15	(2.1)$^{F}_{S}$	2.1$^{F}_{S}$	2.3$^{F}_{S}$	2.1$^{F}_{S}$	(2.3)$^{F}_{S}$	2.3	2.2	2.2^{H}	(1.9)$^{S}_{D}$	2.2	2.4	1.8	2.0	2.1	C	C	J*	2.0	2.1	2.2	2.3	(2.2)^{S}	(2.2)^{S}	2.2
16	A	2.2	(2.3)^{S}	A	A	2.3	2.1$^{V}_{H}$	2.1	2.0	1.9^{H}	2.2	2.2^{H}	(2.2)^{H}	2.4	A	2.3	2.2^{H}	(2.3)^{S}	2.1	(2.2)$^{S}_{F}$	2.2	(2.2)^{S}	2.2$^{F}_{S}$	(2.3)$^{F}_{S}$
17	(2.3)$^{F}_{S}$	2.3	J^{S}	S	J^{S}	2.3^{H}	2.2^{H}	2.2	2.3	2.2	2.2	A	1.9	A	2.1	1.9	1.9	A	A	A	2.3	2.1	A	(2.2)$^{F}_{S}$
18	2.3^{F}	(2.2)$^{F}_{S}$	2.2	2.2	2.3	2.2	2.1	2.4	2.3	2.4	2.4	2.0	2.0	A	A	2.0	1.9^{H}	2.2	2.1	2.0^{H}	2.2	2.2	2.3$^{F}_{S}$	(2.3)$^{F}_{S}$
19	(2.2)^{F}	2.1	(2.2)$^{F}_{S}$	(2.3)$^{F}_{S}$	(2.3)^{F}	2.2	2.0^{F}	2.4^{H}	2.0	1.9	2.0^{H}	2.1	2.0	1.8	1.9	1.8	(1.9)$^{S}_{H}$	2.1	2.2	2.2	2.1	(2.3)^{S}	2.2^{F}	(2.2)^{S}
20	(2.3)$^{F}_{S}$	(2.3)$^{F}_{S}$	(2.3)$^{F}_{S}$	2.6	(2.3)^{S}	1.8	(2.1)^{S}	2.0	A	2.2	1.9^{H}	2.0	G	1.9	1.9	2.2^{H}	1.7	2.0^{H}	2.0	2.1	2.2	2.1	2.1	2.4
21	(2.3)$^{F}_{S}$	(2.1)$^{F}_{S}$	2.2	(2.2)$^{F}_{S}$	(2.3)$^{S}_{D}$	2.4	(2.2)^{H}	1.9^{H}	2.0	2.3	S	2.1^{S}	2.2	A	2.1	1.9	2.0	1.9^{H}	2.1	2.1	2.1	2.1	2.3	(2.2)$^{F}_{S}$
22	J$^{A}_{S}$	(2.2)$^{F}_{S}$	(2.0)$^{F}_{S}$	(2.2)$^{F}_{S}$	(2.1)$^{S}_{F}$	2.2	J^{S}	2.1	1.9	1.9	1.9	(2.2)$^{D}_{S}$	A	2.1	1.8	(1.5)^{D}	1.8	2.0	2.1	(2.3)$^{D}_{S}$	2.1	(2.2)$^{D}_{A}$	2.2	2.1
23	(2.2)$^{D}_{S}$	(2.2)$^{D}_{S}$	2.2	(2.2)$^{F}_{S}$	(2.1)^{S}	2.3	1.6	2.1^{H}	1.9	1.9^{S}	S	1.8^{S}	2.2	1.8	A	2.0	2.0	2.1	2.3	2.2	2.3	2.4	(2.2)^{S}	2.1
24	J^{S}	J^{S}	J^{S}	J^{S}	2.2	2.2	2.0	2.2	(1.9)^{S}	1.8	2.2	2.0	2.3	2.1	1.9	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.2	2.1
25	J^{S}	(2.3)^{S}	(2.1)$^{F}_{S}$	2.1	(2.1)^{S}	2.3	2.2^{H}	2.4	2.1	(2.0)^{S}	1.7	1.9	2.2	2.2	2.4	2.3	1.9	1.9	2.2	(2.2)^{A}	2.2	A	(2.4)^{A}	(2.2)$^{F}_{S}$
26	J^{A}	A	A	A	A	2.2	A	2.1	A	A	A	A	A	A	A	2.0	2.1	C	C	C	2.1	2.1	2.1$^{F}_{S}$	2.1
27	(2.1)$^{J}_{S}$	2.1	(2.1)$^{J}_{S}$	2.2	J^{S}	2.4	2.3	1.9	A	2.3	2.0	2.1	2.1	1.6	2.0	(1.9)^{S}	2.1	1.9^{H}	2.1	2.2	2.1	2.1	2.1	2.0
28	2.0	(2.0)^{S}	(2.2)^{S}	(2.4)$^{J}_{S}$	(2.2)$^{F}_{S}$	(2.2)^{S}	(2.0)^{S}	1.9^{H}	1.8	G	2.2	A^{K}	G^{K}	(1.7)$^{S}_{K}$	A^{K}	A^{K}	A^{K}	A^{K}	1.8^{K}	A	A	2.3	(2.1)^{S}	(2.1)^{S}
29	(2.2)$^{F}_{S}$	S	(2.3)^{S}	A^{S}	A^{S}	(2.4)^{S}	(2.2)^{S}	2.2	2.2^{H}	2.4	2.2	1.8	1.9	A	A	2.1	2.1	2.0	2.2	A	2.2	(2.1)^{S}	2.1	(2.3)$^{F}_{S}$
30	(2.2)$^{F}_{S}$	2.2	2.2^{F}	2.3	(2.3)$^{F}_{S}$	2.2	2.3	2.5^{H}	2.2^{H}	(2.1)^{S}	1.5	2.1^{H}	2.1	J^{S}	2.0	A	1.9	2.1	2.1	2.0	2.1	(2.1)$^{S}_{J}$	(2.2)$^{S}_{D}$	(2.2)^{S}
31																								
Median	(2.2)	2.2	(2.2)	(2.2)	(2.3)	2.3	2.2	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	(2.2)
Count	21	20	21	22	21	30	25	26	23	23	25	24	25	20	22	24	28	26	26	23	27	28	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 82

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F2 (Characteristic), _____ (Unit), June (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Scaled by: E.J.W., J.W.P., J.J.S.

Lat. 38.7°N, Long 77.1° W — 75° W Mean Time

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(3.1)$^{P}_{S}$	(3.0)$^{P}_{S}$	J^{S}	J^{S}	(3.0)$^{P}_{S}$	3.4	2.9	3.1	2.8^{H}	3.1^{H}	3.0	3.1	S	3.0	3.0	3.1	2.9	3.1	3.2	3.4	3.4	3.4	3.2	3.0
2	3.1	A	(3.0)^{S}	J^{S}	S^{A}	3.5	3.3	3.2	2.9	3.3	3.0	3.1	3.0	A	2.9^{H}	3.0^{H}	3.0	3.1	3.1	3.3	3.4	3.3	3.3^{F}	A
3	A	3.2	A^{S}	(3.4)$^{F}_{S}$	(3.3)$^{F}_{S}$	(3.4)$^{S}_{H}$	3.6^{H}	3.1	2.9^{H}	A	3.1	3.1^{H}	3.0^{H}	3.0	2.9^{H}	2.9	2.9	3.0	3.2	(3.2)^{A}	3.3	3.2	3.2	3.3^{F}
4	A	3.1^{F}	3.2	A	(3.0)$^{P}_{S}$	(3.5)$^{F}_{S}$	3.4^{H}	3.3	3.1	(3.1)^{S}	3.0	2.8	3.1	2.9	2.9	3.1	3.1	3.2	3.2	3.3	3.2	3.2	J^{S}	(3.2)$^{J}_{S}$
5	(3.2)$^{F}_{S}$	F^{S}	(3.2)$^{F}_{S}$	(3.3)$^{F}_{S}$	(3.5)$^{F}_{S}$	3.4^{F}	3.4^{F}	3.4^{F}	(3.4)^{P}	3.0	3.0	3.2	2.9	2.7^{H}	3.0	3.1	3.0	3.1	3.1	(3.2)^{S}	3.2	(3.3)^{S}	3.3^{F}	(3.3)^{F}
6	3.4^{F}	(3.4)^{F}	(3.3)$^{F}_{S}$	3.3^{F}	3.4^{F}	3.2	3.1^{H}	3.1^{H}	A	2.8	3.2	3.0^{H}	2.9	3.0^{H}	3.0	3.1	3.0	3.1	3.3	3.2	3.3	3.3	3.3^{F}	3.0
7	(3.2)$^{A}_{F}$	A	(3.3)$^{F}_{S}$	3.3^{F}	3.3^{F}	3.5^{H}	3.6	3.5	2.9^{H}	2.9^{H}	3.2	A	3.1	(3.1)^{S}	3.1	A	2.9	3.0	A	A	3.3	3.2	3.1	3.4^{F}
8	3.1	(3.4)^{F}	3.4^{F}	(3.4)^{F}	S	3.3	A	3.2	A	A	A	2.2	2.9	2.8	(2.7)^{S}	2.6	2.8	2.9	3.3	3.3	A	A	3.1	3.1^{A}
9	3.3^{F}	3.3	3.3	3.1^{F}	3.3^{F}	3.3^{H}	(3.2)$^{P}_{H}$	3.2	2.8^{H}	A	2.9^{H}	2.9	3.0	3.3	3.1	3.0	3.0	3.1	3.1	A	3.2	(3.3)^{S}	3.3	(3.3)$^{F}_{S}$
10	3.2^{F}	3.4^{F}	(2.9)$^{F}_{S}$	3.1	3.0	3.4	2.7	(3.3)$^{S}_{P}$	3.3^{H}	A	A	A	A	G	2.3	(2.8)$^{P}_{S}$	3.0	(2.9)^{H}	3.2	3.2	3.2	3.2	A^{S}	S
11	S	S	A	(3.1)$^{P}_{S}$	A	3.4	A	A	3.3	A	(3.5)^{P}	(3.0)$^{S}_{P}$	(2.9)^{S}	J^{S}	2.9	A	2.9	3.2	(3.0)$^{S}_{P}$	A^{S}	A	(3.4)^{S}	(3.4)$^{F}_{S}$	A
12	A	A	A,	(3.3)$^{P}_{S}$	(3.3)$^{F}_{S}$	(3.5)^{F}	3.4$^{F}_{S}$	A	A	A	3.0	3.1	A	J^{A}	3.2	3.0	3.0^{H}	3.3	3.1	3.2	3.4	3.2	(3.2)$^{F}_{S}$	(3.3)$^{F}_{S}$
13	(3.4)$^{F}_{S}$	A	A^{S}	(3.3)$^{F}_{S}$	(3.2)^{S}	3.3	3.0	J^{S}	J^{S}	(2.8)^{S}	2.6	S	(2.9)^{S}	S	S	A	(3.0)^{S}	A	3.1	3.3	(3.4)^{S}	3.2	3.4	3.1
14	(3.1)^{S}	A^{S}	A^{S}	(3.2)$^{F}_{S}$	A^{S}	(3.4)^{S}	A	A	3.0^{S}	3.1	2.6	2.9	3.2^{H}	3.0	3.2	2.7^{H}	(2.9)$^{P}_{S}$	3.1	A	3.3	3.3^{F}	3.3	3.2	(3.1)$^{F}_{S}$
15	(3.1)$^{F}_{S}$	3.1$^{F}_{S}$	3.4$^{F}_{S}$	3.1$^{F}_{S}$	(3.4)$^{F}_{S}$	3.4	3.3	3.2^{H}	(2.9)$^{S}_{P}$	3.3	3.4	2.7	3.0	3.1	C	C	S^{J}	3.0	3.1	3.2	3.3	(3.2)^{S}	(3.2)^{S}	3.2
16	A	3.2	(3.3)^{S}	A	A	3.3	3.1$^{V}_{H}$	3.1	3.0	2.9^{H}	3.3	3.3^{H}	(3.2)^{H}	3.5	A	3.4	3.2^{H}	(3.4)^{S}	3.1	(3.3)$^{S}_{P}$	3.2	(3.3)^{S}	3.3$^{F}_{S}$	(3.4)$^{F}_{S}$
17	(3.4)$^{F}_{S}$	3.4	J^{S}	S	J^{S}	3.4^{H}	3.2^{H}	3.2	3.3	3.3	3.2	A	2.9	A	3.1	2.9	2.9	A	A	A	3.3	3.1	A	(3.2)$^{F}_{S}$
18	3.3^{F}	(3.2)$^{F}_{S}$	3.2	3.2	3.3	3.2	3.1	3.4	3.3	3.4	3.5	3.0	3.0	A	A	3.0	2.9^{H}	3.2	3.1	3.0^{H}	3.2	3.3	3.3$^{F}_{S}$	(3.3)$^{F}_{S}$
19	(3.2)^{F}	3.1	(3.2)$^{F}_{S}$	(3.3)$^{F}_{S}$	(3.4)^{F}	3.2	3.0^{F}	3.5^{H}	3.0	2.8	3.0^{H}	3.1	3.0	2.7	2.9	2.7	(2.9)$^{S}_{H}$	3.1	3.2	3.2	3.1	(3.3)^{S}	3.3^{F}	(3.2)^{S}
20	(3.3)$^{F}_{S}$	(3.4)$^{F}_{S}$	(3.3)$^{F}_{S}$	3.7	(3.3)^{S}	2.7	(3.1)^{S}	3.0	A	3.3	2.9^{H}	3.0	G	2.9	2.7	3.2^{H}	2.6	3.0^{H}	3.0	3.1	3.3	3.1	3.1	3.4
21	(3.4)$^{F}_{S}$	(3.1)$^{F}_{S}$	3.2	(3.3)$^{F}_{S}$	(3.3)$^{S}_{P}$	3.5	(3.2)^{H}	2.8^{H}	3.0	3.4	S	3.1^{S}	3.3	A	3.1	2.8	3.0	2.9^{H}	3.1	3.1	3.1	3.1	3.4	(3.2)$^{F}_{S}$
22	J$^{A}_{S}$	(3.2)$^{F}_{S}$	(3.0)$^{F}_{S}$	(3.2)$^{F}_{S}$	(3.1)$^{F}_{S}$	3.2	J^{S}	3.1	2.9	2.9	2.7	(3.3)$^{P}_{S}$	A	3.1	2.7	(2.2)^{P}	2.8	3.0	3.2	(3.4)$^{P}_{S}$	3.2	(3.2)$^{F}_{A}$	3.2	3.1
23	(3.2)$^{P}_{S}$	(3.3)$^{P}_{S}$	3.2	(3.2)$^{F}_{S}$	(3.1)^{S}	3.3	2.4	3.1^{H}	2.9	2.9^{S}	S	2.7^{S}	3.2	2.7	A	2.7	3.0	3.1	3.3	3.2	3.3	3.4	(3.3)^{S}	3.1
24	J^{S}	J^{S}	J^{S}	J^{S}	3.2	3.3	3.0	3.2	(2.9)^{S}	2.7	3.3	3.0	3.3	3.1	2.8	3.0	3.0	3.0	3.1	3.1	3.3	3.3	3.2	3.1
25	J^{S}	(3.3)^{S}	(3.2)$^{F}_{S}$	3.1	(3.1)^{S}	3.3	3.2^{H}	3.5	3.1	(3.0)^{S}	2.6	2.9	3.2	3.2	3.4	3.3	2.9	2.9	3.3	(3.2)^{A}	3.2	A	(3.4)^{A}	(3.2)$^{F}_{S}$
26	J^{A}	A	A	A	A	3.3	A	3.1	A	A	A	A	A	A	A	3.0	3.1	C	C	C	3.1	3.1	3.1$^{F}_{S}$	3.1
27	(3.1)$^{J}_{S}$	3.1	(3.1)$^{J}_{S}$	3.2	J^{S}	3.4	3.4	2.9	A	3.3	3.0	3.1	3.1	2.5	3.0	(2.9)^{S}	3.1	2.9^{H}	3.1	3.2	3.1	3.1	3.1	3.0
28	3.0	(3.0)^{S}	(3.2)^{S}	(3.5)$^{J}_{S}$	(3.2)$^{F}_{S}$	(3.2)^{S}	(3.0)^{S}	2.9^{H}	2.9	G	3.3	A^{K}	G^{K}	(2.5)$^{S}_{K}$	A^{K}	A^{K}	A^{K}	A^{K}	2.7^{K}	A	A	3.3	(3.1)^{S}	(3.1)^{S}
29	(3.2)$^{F}_{S}$	S	(3.3)^{S}	A^{S}	A^{S}	(3.4)^{S}	(3.2)^{S}	3.3	3.2^{H}	3.4	3.2	2.7	2.9	A	A	3.1	3.1	3.0	3.2	A	3.2	(3.1)^{S}	3.2	(3.3)$^{F}_{S}$
30	(3.2)$^{F}_{S}$	3.2	3.2^{F}	3.3	(3.3)$^{F}_{S}$	3.3•	3.4	3.5^{H}	3.3^{H}	(3.1)^{S}	2.4	3.1^{H}	3.1	J^{S}	3.0	A	2.9	3.1	3.1	3.0	3.1	(3.1)$^{S}_{J}$	(3.2)$^{S}_{P}$	(3.2)^{S}
31																								
Median	(3.2)	3.2	(3.2)	(3.3)	(3.3)	3.4	3.2	3.2	3.0	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.2	(3.2)
Count	21	20	21	22	21	30	25	26	23	23	25	24	25	20	22	24	27	26	26	23	27	27	27	27

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 83

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form accepted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), June (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: E.J.W. J.W.P., J.J.S.

Lat. 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: E.J.W., J.W.P. J.J.S

Doy	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							3.6	3.6	3.9	3.9 H	4.0 H	4.0 H	4.0 H	4.0	3.8	3.8	3.8	A	A					
2							3.7	3.6	A	A	A	A	A	A	3.9 H	3.8 H	3.7 H	3.8 H	3.6 H					
3							L	3.9	3.8	A	3.8	4.0 H	4.2 H	4.1 H	3.8 H	3.8	3.7	3.5	3.7					
4							3.6 H	A	3.8 H	3.9	3.9 H	4.1 H	3.9 H	3.9 H	3.7	3.7	3.5 H	3.5	3.9					
5							3.7	3.8 H	3.9	4.0 H	4.1	3.9	3.9 H	4.1 H	3.9	4.0	3.7	3.6 H	3.6					
6							3.7 H	3.5	A	3.9	3.9 H	3.9 H	3.9 H	4.0 H	3.9	(3.9) S	A	3.5	A					
7							L	3.8	A	3.8 H	A	A	A	3.6	(4.0) S	A	A	A	A					
8							A	A	A	A	A	A	4.0 H	4.0 H	3.9 H	3.9	3.7	A	A					
9						L	3.5	3.7	(3.9) A	A	S	A	A	3.9 H	A	4.0 H	3.8 H	3.7 H	A					
10							3.7	3.9	3.9 H	4.0	A	A	A	3.9	4.2	3.9 H	(3.7) H	3.7 H	(3.9) H					
11							A	A	3.9 S	A	3.9 H	4.1 H	4.1 H	4.1 H	4.1 H	A	3.9 F	3.7	3.6					
12							3.7 H	A	A	A	A	A	A	A	3.7	3.8 H	3.8	3.8	A	L				
13						L	A	3.8	3.8	4.1	4.1 H	4.0 H	4.1 H	4.2	(4.1) S	A	A	A	L					
14							A	A	3.9 S	3.9 S	4.2 H	(4.1) P	4.1 H	3.9 H	4.0 H	(3.9) S	3.8 H	A	A					
15							3.7	3.7 H	3.7 S	3.9 H	4.1	4.0 H	4.1 H	A	C	C	(3.9) S	A	A					
16							3.5	3.6	3.7 H	3.9 H	A	4.1 H	4.2 H	4.2 H	A	3.8 H	3.9 H	(3.7) S	A					
17							3.6 H	3.7 H	A	4.0	A	A	4.2	A	3.9	3.9	3.7 S	A	A					
18							3.6 H	3.7	4.0	3.8	A	A	4.2 H	A	A	3.9 H	3.8	3.7 H	A	A				
19						Q	3.7	(3.7) S	3.9 S	(3.9) S	3.9	4.0 H	4.0 H	4.0	4.1 H	3.9 H	A	3.6 H	A	A				
20						33	3.2 H	A	A	3.7	3.9 H	4.1 H	4.2 H	4.3 H	A	3.7 H	3.7 H	3.8	3.6	L				
21						Q	(3.7) A	3.6 H	3.7 H	4.0	A	3.8	A	A	A	A	3.8 F	A	A	A				
22						Q	(3.5) S	3.7 H	3.7	3.8 H	3.9	4.1 H	(4.0) A	3.9 H	(4.1) P	3.9 H	3.9	3.8 H	A	A				
23						Q	3.4	3.8 H	3.7	3.8	4.0	4.3	3.9 H	4.0	A	3.8 H	3.8 H	3.7	3.7	L				
24						L	3.5	3.8	3.8	3.6 H	4.0 S	4.0 H	4.2	4.3 H	4.1 H	3.9 H	3.9	3.8	3.7	A				
25						Q	3.8	3.7 H	3.9 H	(3.9) S	4.0 H	4.0	4.1	4.1	4.2	4.1 H	3.7	(3.6) A	A	A				
26						Q	A	3.5	A	A	A	A	A	A	A	A	(3.9) S	C	C	C				
27						L	L	A	A	A	3.9 H	4.1 H	(4.1) S	4.1	4.0 H	4.0 H	(3.9) S	3.8 H	3.6 H	L				
28						Q	3.5 H	3.6	3.7 H	4.0	4.0	A K	4.0 K	A K	A K	A K	A K	A K	3.6 K	A				
29						Q	3.6 H	A	3.7	3.8 H	4.1	4.1 H	4.0 H	A	A	A	3.8 H	3.6	A	A				
30						Q	(3.8) S	3.9	3.8	3.9 H	4.0 H	4.0 H	4.1 H	4.0 H	A	A	3.8 H	3.6	3.7	(3.5) S				
31																								
Median						—	3.6	3.7	3.8	3.9	4.0	4.0	4.1	4.0	4.0	3.9	3.8	3.7	3.6	—				
Count						1	22	22	21	22	19	20	23	21	19	21	25	20	12	1				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 84

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M1500) E (Characteristic), (Unit), June (Month), 1954

National Bureau of Standards (Institution)

Observed at Washington, D. C.

Lat. 38.7°N, Long. 77.1° W

75° W Mean Time

Scaled by: E.J.W., J.W.P., J.J.S

Calculated by: E.J.W., J.W.P., J.J.S.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							(4.3)A	4.4	4.5	4.6	4.5	A	A	4.4	4.3	4.4	4.3	4.3	4.5					
2							4.5	4.5	4.4	4.4	(4.5)A	A	A	A	4.4H	4.4	4.4	4.4	4.4H					
3							4.6	4.6	4.5	4.5	A	A	A	A	A	4.4H	(4.4)P	4.4	4.4H					
4							4.5H	4.5	4.5H	4.6	4.5	A	4.4	4.4H	4.5	4.4H	4.4	4.4H	4.4H					
5							A	4.4H	4.5	4.4H	4.4	(4.4)P	4.3	4.3H	4.4	B	4.4H	4.4H	4.5					
6							4.5H	4.3H	4.4H	4.3H	4.4H	4.4H	4.5	4.5	4.5	(4.4)B	4.3	4.3	(4.5)P					
7							4.4H	4.3H	4.4	4.5H	4.3H	4.4H	(4.5)A	4.5A	4.5H	4.5	4.5H	4.4	4.3					
8							4.5	4.5	4.5	A	4.6	A	A	A	A	S	(4.5)P	4.4	(4.4)S					
9						S	4.5H	S	4.4	(4.4)A	4.5	A	A	A	4.5	4.4H	4.4H	4.4H	A					
10							4.4	4.3	(4.4)H	4.5	(4.5)P	A	A	4.5	4.5	(4.4)A	(4.5)P	4.5	4.5					
11							A	A	4.4H	4.4	A	4.4	(4.4)P	(4.4)P	4.3H	4.5	4.4H	4.4	B					
12							4.5	4.5H	4.5	4.5H	4.4H	4.4	4.4	A	4.4	4.5	4.5	A	A	S				
13						S	S	(4.4)S	4.4	4.4	A	B	A	A	4.4H	(4.4)S	4.4	(4.4)S	S					
14							4.5	4.5	A	4.5	4.5	4.5	A	4.5	(4.4)P	4.5H	(4.5)P	A	4.4H					
15							4.3H	(4.4)P	4.5	4.5	A	(4.5)P	4.5	A	C	C	(4.4)H	(4.4)S	4.4					
16							A	4.4	4.4	4.4	B	4.5	A	A	A	A	A	4.4	4.4					
17							4.4H	4.4H	4.4	4.4	4.4	(4.4)P	A	A	A	A	A	4.3H	B					
18							4.4	(4.5)S	4.5H	4.5	4.4H	(4.4)P	4.4H	A	A	4.3H	4.3	4.3	4.4	A				
19						S	4.4	4.4	4.4H	4.4	4.5	4.5	A	A	4.5	4.4H	4.4	4.3S	4.4	S				
20						S	(4.4)P	4.5S	4.5	4.5	4.4H	4.5	(4.5)A	A	4.5	4.5	S	(4.5)B	B	S				
21						S	A	4.5	A	A	4.5H	4.4	4.4H	4.5	(4.5)A	(4.5)S	4.4	4.4H	4.4H	S				
22						S	4.4H	4.5	A	A	(4.5)P	A	(4.3)P	(4.4)B	(4.5)P	A	4.4H	4.2	(4.2)P	A				
23						S	4.3	4.3H	(4.3)P	4.4	4.5H	(4.4)P	A	4.3H	(4.3)P	(4.4)P	(4.3)P	4.4	A	S				
24						S	4.4	4.4S	4.4	4.3	4.4	A	4.4	(4.4)A	4.5	4.4	(4.4)P	4.3	4.3H	S				
25						S	4.4	A	(4.4)S	4.5	A	4.4	(4.4)A	4.5	4.4	4.4	4.4H	4.4	4.4	S				
26						S	4.3	(4.5)A	4.4	4.4	4.4H	A	4.5	(4.5)A	(4.4)P	A	S	C	C	C				
27						S	4.3H	(4.3)S	4.4H	4.5	4.5	(4.5)S	4.5	(4.4)P	(4.4)P	4.4H	4.3H	(4.3)S	S	S				
28						S	(4.4)A	(4.3)S	4.3	4.5	4.4	(4.4)PK	BK	(4.4)PK	4.4HK	4.4HK	4.3K	(4.4)SK	AK	S				
29						S	4.4H	4.5	(4.3)S	4.4H	A	A	A	A	A	A	A	4.3	4.4	A				
30						S	S	4.4	4.4	(4.5)A	A	A	A	A	A	4.4H	4.3	4.3	4.3	S				
31																								
Median							4.4	4.4	4.4	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4					
Count							24	27	27	27	22	17	15	16	22	22	25	27	20					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 85

Ionospheric Storminess at Washington, D. C.

June 1954

Day	Ionospheric character* 00-12 GCT	12-24 GCT	Principal storms Beginning GCT	End GCT	Geomagnetic character** 00-12 GCT	12-24 GCT
1	3	2			2	1
2	3	1			3	1
3	1	1			2	2
4	2	1			3	2
5	1	1			0	2
6	1	1			2	2
7	2	2			2	3
8	1	3			2	1
9	2	1			2	2
10	1	3			4	2
11	2	3			1	1
12	2	2			1	2
13	1	2			2	3
14	3	1			3	2
15	2	1			2	2
16	3	2			2	1
17	1	2			1	2
18	2	1			1	2
19	3	2			2	2
20	3	3			2	1
21	0	2			1	2
22	2	2			3	2
23	3	3			2	3
24	3	2			1	2
25	3	2			2	2
26	3	1			2	2
27	2	1			2	3
28	2	4	1100	1800	3	2
29	3	2			2	1
30	0	1			2	2

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

Table 86

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

May 1954

Day	North Pacific 9 - hourly quality figures			Short-term forecasts issued at:			Whole day quality index	Advance forecasts (J_p reports) for whole day; issued in advance by:		
	03 to 12	09 to 18	18 to 03	02	09	18		1-4 days	4-7 days	8-25 days
1	6	6	6	6	6	7	6	6	6	
2	6	6	7	6	6	7	6	6	7	
3	7	6	6	6	6	7	7	7	7	
4	7	6	6	7	5	7	7	7	7	
5	6	6	6	6	6	7	6	6	6	
6	6	6	6	7	6	7	6	6	6	
7	6	6	6	6	6	7	6	6	5	
8	5	6	6	6	6	6	6	5	5	
9	5	5	6	6	5	6	5	(4)	(4)	X
10	6	7	7	5	5	7	7	(4)	(4)	X
11	6	6	6	6	6	6	7	5	5	
12	6	6	6	6	6	6	6	6	6	
13	6	6	6	7	6	6	6	6	6	
14	6	6	6	6	6	6	6	6	6	
15	5	6	6	6	6	7	6	6	6	
16	5	6	7	6	6	7	6	6	6	
17	6	6	6	6	6	7	6	6	6	
18	6	6	7	7	6	6	6	6	6	
19	6	5	6	6	6	7	6	6	6	
20	5	6	6	6	5	7	6	6	7	
21	5	6	6	6	6	6	6	7	7	
22	6	6	6	6	6	6	6	6	7	
23	6	6	6	6	6	6	6	6	6	
24	6	6	7	6	6	7	6	6	6	
25	6	6	6	6	6	7	6	6	6	
26	6	6	5	7	6	7	6	6	6	
27	6	6	6	6	6	7	6	6	6	
28	6	6	6	7	7	7	6	7	7	
29	6	6	6	7	6	7	6	7	7	
30	7	7	6	7	7	7	7	7	7	
31	6	7	6	7	7	7	7	7	7	
Score:										
Quiet Periods			P	16	26	13		24	20	
			S	15	4	17		5	9	
			U	0	1	1		1	1	
			F	0	0	0		1	1	
Disturbed Periods			P	0	0	0		0	0	
			S	0	0	0		0	0	
			U	0	0	0		0	0	
			F	0	0	0		0	0	

Scales:

Q-scale of Radio Propagation Quality

(1) - useless
(2) - very poor
(3) - poor
(4) - poor to fair
5 - fair
6 - fair to good
7 - good
8 - very good
9 - excellent

Scoring: (beginning October 1952)

P - Perfect: forecast quality equal to observed
S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
F - Failure: other times when forecast quality two or more grades different from observed

Symbols:

X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

Table 87a

Radio Propagation Quality Figures

(Including Comparisons with Short-Term and Advance Forecasts)

May 1954

Day	North Atlantic 6-hourly quality figures				Short-term forecasts issued about one hour in advance of:				Whole day quality index	Advance forecasts (J-reports) for whole day; issued in advance by:			Geomagnetic K_{Ch}	
	00 to 06	06 to 12	12 to 18	18 to 24	00	06	12	18		1-4 days	4-7 days	8-25 days	Half day (1)	Half day (2)
1	6	(4)	7	7	6	5	7	6	6	6	6		2	1
2	6	5	7	7	6	5	6	6	6	7	6		3	2
3	7	6	7	7	6	6	6	7	7	7	6		2	1
4	7	6	7	7	7	6	7	6	7	7	7		3	3
5	7	6	7	7	(4)	5	7	7	7	7	6		2	2
6	7	6	7	7	6	6	7	7	7	6	6		1	1
7	7	7	7	7	6	6	7	7	7	7	6		1	2
8	7	6	7	7	6	6	7	7	7	(4)	(4)	X	2	3
9	7	5	7	7	5	5	6	6	6	(4)	(4)	X	3	2
10	7	6	6	7	5	5	6	6	6	(4)	(4)	X	2	3
11	6	5	6	6	6	5	6	6	6	6	5		(4)	3
12	7	6	6	7	6	6	7	6	6	6	5		2	2
13	7	6	6	7	6	6	7	6	7	6	6		2	3
14	7	6	7	7	6	5	7	6	7	6	7		3	2
15	7	6	7	7	6	6	6	6	7	6	7		2	3
16	6	5	7	7	6	(4)	6	6	6	6	7		3	1
17	7	6	7	7	6	6	7	7	7	6	6		1	1
18	7	5	7	7	6	5	7	7	7	7	6		3	3
19	7	6	7	7	6	6	7	7	7	7	6		3	3
20	7	6	7	7	6	6	7	6	7	7	6		2	3
21	7	5	6	7	7	6	7	7	6	6	6		3	3
22	7	6	7	7	7	5	7	7	7	6	6		2	2
23	7	6	7	7	6	6	6	6	7	5	5		2	1
24	7	6	6	7	6	6	7	7	7	5	5		2	2
25	7	7	7	7	7	6	7	7	7	7	6		2	1
26	7	6	7	7	7	6	7	7	7	7	6		2	2
27	7	6	7	7	7	6	7	7	7	7	6		2	1
28	7	6	7	7	7	7	7	7	7	7	7		1	2
29	7	6	7	7	6	6	7	7	7	7	7		3	2
30	7	6	7	7	7	6	7	7	7	7	7		2	1
31	7	7	7	7	7	6	7	7	7	7	7		1	2

Score:

Quiet periods	P	13	20	21	19	19	10	
	S	15	10	10	12	7	16	
	U	2	0	0	0	2	2	
	F	1	0	0	0	3	3	
Disturbed periods	P	0	0	0	0	0	0	
	S	0	1	0	0	0	0	
	U	0	0	0	0	0	0	
	F	0	0	0	0	0	0	

Scales:

Q-scale of Radio Propagation Quality
- (1) - useless
- (2) - very poor
- (3) - poor
- (4) - poor to fair
- 5 - fair
- 6 - fair to good
- 7 - good
- 8 - very good
- 9 - excellent

K-scale of Geomagnetic Activity
0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Scoring: (beginning October 1952)
- P - Perfect: forecast quality equal to observed
- S - Satisfactory: (beginning October 1952) forecast quality one grade different from observed
- U - Unsatisfactory: forecast quality two or more grades different from observed when both forecast and observed were ≥ 5, or both ≤ 5
- F - Failure: other times when forecast quality two or more grades different from observed

Symbols:
- X - probable disturbed date

Note: All times are UT (Universal Time or GCT)

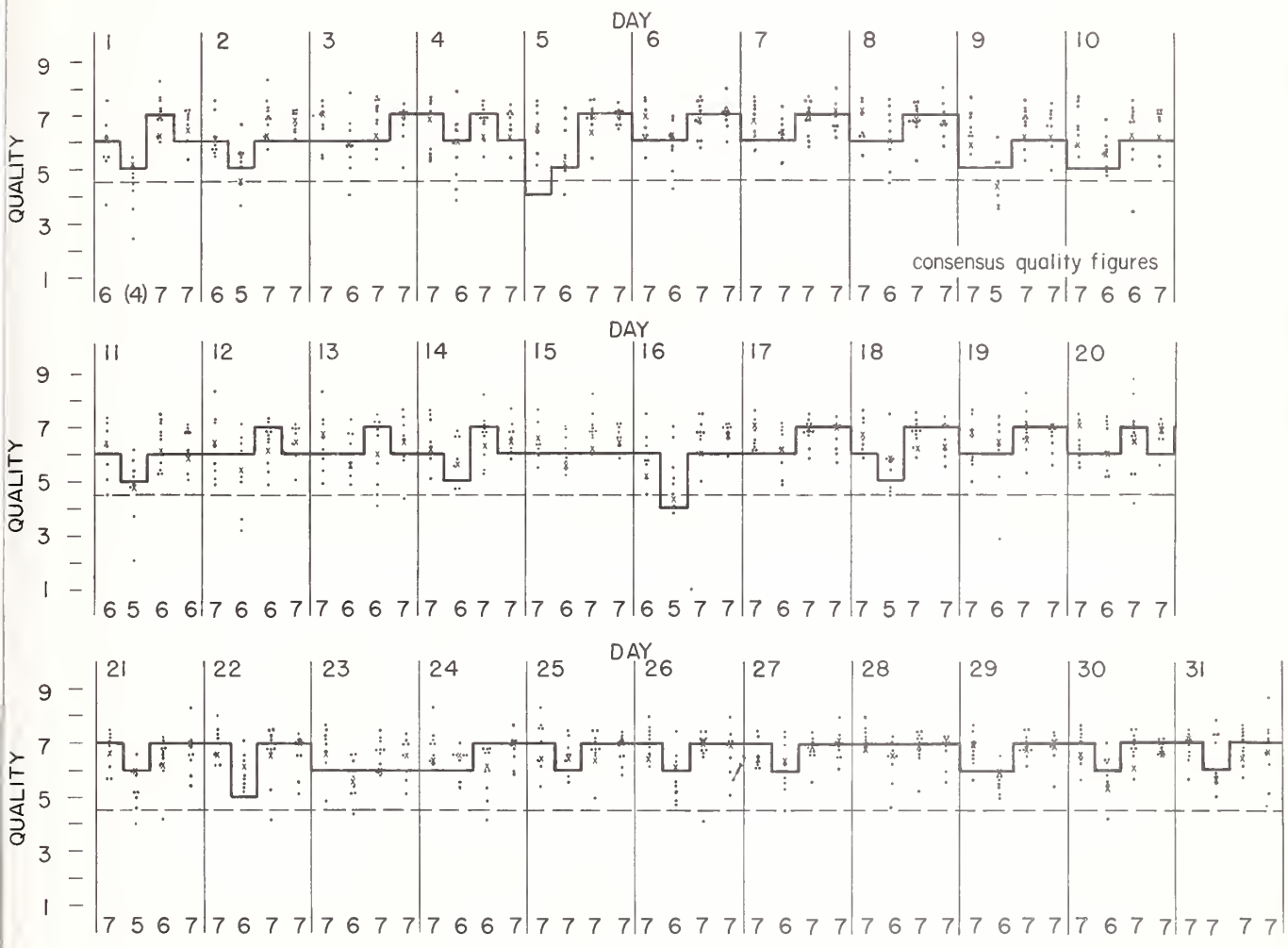
Table 87b

Short-Term Forecasts---May 1954

—— forecast

× CRPL observation (not in consensus)

• individual reports of quality (adjusted to CRPL scale)



Outcome of Advance Forecasts (1 to 4 days ahead) --- May 1954

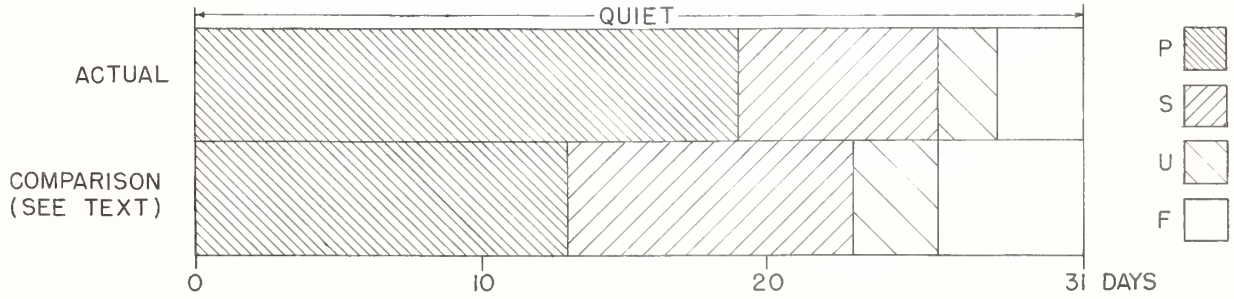


Table 88a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																				Degrees south of the solar equator																				
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90				
1954																																										
Jun 1.9a	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
2.6	-	-	-	-	-	-	-	-	-	1	1	2	3	2	1	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
3.6	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
4.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X				
5.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
7.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X				
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
9.5a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
11.7a	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
12.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-				
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X				
16.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
21.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
26.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
27.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
28.6	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
29.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
30.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

Table 89a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																				Degrees south of the solar equator																				
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90				
1954																																										
Jun 1.9a	2	2	2	2	2	1	1	1	1	1	1	1	1	2	3	3	3	3	3		4	4	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2				
2.6	2	2	3	1	1	1	1	1	1	2	2	2	2	2	3	4	4	4	4		5	5	4	4	4	5	4	3	1	1	1	1	1	1	1	1	2				
3.6	3	3	3	2	1	1	1	1	1	2	2	2	3	4	4	4	4	4	5		5	4	4	3	3	4	3	2	2	1	1	1	1	1	1	1	2				
4.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	4	3	3		3	3	4	3	3	3	3	X	X	X	X	X	X	X	X	X	X				
5.7a	2	2	2	-	-	-	-	-	-	-	-	-	-	-	3	4	3	3	4		4	3	2	2	3	4	4	3	2	1	1	1	1	1	1	1	2	2				
6.7a	2	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3		3	3	4	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1				
7.9a	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	4		4	4	4	4	4	3	3	X	X	X	X	X	X	X	X	X	X				
8.6	2	2	1	1	1	1	1	1	1	1	2	3	3	4	2	1	1	3	3		4	3	4	4	4	3	3	3	2	1	1	1	1	2	2	2	2	2				
9.5a	1	1	1	-	-	-	-	-	-	-	-	1	1	1	1	2	2	2	2		2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1				
10.6	2	2	1	1	-	-	-	-	-	-	1	3	4	4	4	4	4	4	5		5	5	5	5	5	5	4	4	3	2	2	2	2	2	2	2	3	3				
11.7a	2	2	2	2	1	1	1	1	1	2	3	3	3	4	4	4	4	5	5		5	4	4	4	3	2	1	2	1	1	1	1	1	1	1	1	1	2				
12.6	2	2	1	1	1	1	1	1	1	1	2	2	3	3	3	4	4	4	4		4	3	3	3	3	3	3	2	1	1	1	1	1	1	1	3	2	2				
14.7a	2	2	3	1	1	1	1	1	1	2	2	2	4	4	4	2	2	2	2		2	2	2	2	3	5	3	1	1	1	1	1	1	1	1	2	2	2				
15.8	2	2	2	1	1	1	1	1	1	1	1	1	3	2	2	2	2	3	3		3	3	3	3	3	3	3	X	X	X	X	X	X	X	X	X	X	X				
16.9	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3		3	3	3	3	2	2	2	2	1	1	1	1	1	2	2	2	2	2				
17.6	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4		3	4	3	3	3	3	3	4	2	1	1	1	1	1	1	1	2	2				
18.6	2	2	2	1	1	1	1	1	1	1	2	2	3	4	2	2	3	4	3		3	3	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2				
19.6	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3		3	3	3	3	4	3	4	3	2	1	1	1	1	1	1	2	2	2				
21.6	2	2	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	5		4	5	4	3	2	1	1	1	1	1	1	1	1	1	1	1	2	2				
24.6a	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3		3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
25.7a	2	2	2	2	2	2	2	2	2	3	4	4	3	3	3	3	3	3	3		3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
26.6a	2	2	1	1	1	1	1	1	1	1	3	3	2	3	4	4	4	4	4		4	4	4	4	4	4	3	2	1	1	1	1	1	2	2	2	2	2				
27.9a	2	2	2	2	1	1	1	1	1	1	1	1	2	3	5	5	5	5	4		7	7	5	5	4	4	4	4	4	3	2	1	1	1	2	2	2	2				
28.6	2	2	1	-	-	-	-	-	-	1	1	2	2	3	3	3	4	4	4		5	3	4	4	4	4	3	2	2	3	3	3	3	2	2	3	3	3				
29.6a	2	2	1	1	-	-	-	-	-	-	1	1	1	1	2	2	2	2	3		2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2				
30.7a	2	2	2	2	1	1	1	1	2	2	2	3	3	3	4	4	4	5	4		4	4	4	4	3	4	4	4	3	2	1	1	1	1	1	1	2	2				

Table 90a

Coronal observations at Climax, Colorado (6702A), east limb

The 6702A coronal line was not visible on any of the observation dates in June at the position angles indicated for the 6374A line.

Table 88b

Coronal observations at Climax, Colorado (5303A), west limb

Date GCT	Degrees south of the solar equator																					Degrees north of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-
3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-
4.6a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.9a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
15.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
16.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-
17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9a	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 89b

Coronal observations at Climax, Colorado (6374A) west limb

Date GCT	Degrees south of the solar equator																					Degrees north of the solar equator																		
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.9	2	2	1	1	1	1	1	1	1	1	1	2	3	3	3	3	4	4	4	4	3	3	3	2	2	1	1	1	1	1	1	1	1	X	X	X	2
2.6	2	2	3	2	2	2	2	1	1	1	2	3	4	4	3	4	5	5	5	5	5	5	5	3	2	1	1	1	1	1	1	1	1	1	2	2	2
3.6	2	2	2	2	1	1	1	2	2	2	2	3	4	4	4	5	6	6	5	4	4	4	4	4	4	3	2	1	1	1	2	2	3	3	3	3	3
4.6a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
5.7	2	2	2	1	1	2	2	2	2	2	3	3	4	5	4	4	5	4	4	4	5	7	4	4	4	4	3	2	1	1	1	1	1	1	2	2	
6.7a	1	2	1	1	1	1	1	1	1	2	2	2	3	4	3	4	3	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	2	2	2	2	2
7.9a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
8.6	2	2	2	2	1	1	1	1	1	1	2	2	3	3	3	3	3	4	4	4	5	5	4	3	2	2	2	2	1	1	1	1	1	1	2	2	2
9.5	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
10.6	3	3	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	4	3	2	1	1	1	1	1	1	1	1	1	1	2
11.7a	2	2	2	2	2	1	1	1	1	2	4	5	5	5	5	4	3	3	4	6	5	6	5	8	6	4	2	1	1	1	1	1	1	2	2	2	2
12.6	2	2	3	2	2	1	1	1	1	3	3	3	3	3	3	3	4	4	5	6	7	6	5	5	5	3	3	2	1	1	1	1	1	1	2	2	2
14.7a	2	2	2	1	1	1	1	1	1	1	1	2	3	4	4	4	4	5	5	6	6	5	5	5	3	3	3	3	1	1	1	1	1	2	2	2	2
15.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2
16.9a	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	X	X	X	X	X	X	2
17.6	2	2	1	1	1	1	1	1	1	1	2	2	3	2	2	2	2	3	4	4	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
18.6	2	2	1	1	1	1	1	1	1	1	2	3	3	3	3	3	4	4	5	5	5	4	4	4	4	3	1	1	1	1	1	1	1	2	2	2	2
19.6a	2	2	2	2	1	1	1	1	1	1	2	2	2	3	3	4	4	4	4	4	4	4	4	4	4	3	3	2	1	1	1	1	1	2	2	2	2
21.6a	2	2	2	2	2	2	2	2	1	2	2	3	3	3	3	4	4	4	5	5	5	4	4	4	4	3	2	1	1	1	1	1	2	2	2	2	2
24.6a	2	1	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	5	5	5	5	5	5	5	5	3	2	2	2	2	2	2	2	2	2	2	2
25.7a	2	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5	4	2	1	1	1	1	1	1	1	1	2	2	2
26.6a	2	2	1	1	1	2	2	2	2	2	3	3	3	4	4	4	4	5	6	6	6	5	5	5	4	3	3	2	2	2	2	2	2	2	2	2	2
27.9a	2	2	2	2	2	1	1	1	1	3	2	3	5	6	5	4	4	5	5	5	5	5	5	6	6	5	4	3	2	2	2	2	2	2	2	2	2
28.6a	3	-	-	-	-	-	-	-	-	2	2	2	2	3	4	4	4	4	3	3	3	3	3	4	4	5	3	2	1	1	1	1	1	2	2	2	2
29.6	2	2	2	1	1	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	4	4	4	5	5	4	3	2	2	2	2	2	2	2	2	2	2
30.7	2	2	1	1	1	1	1	1	1	1	1	3	4	4	4	4	5	6	5	4	4	5	5	5	3	5	4	3	2	2	2	2	1	1	2	2	2

Table 90b

Coronal observations at Climax, Colorado (6702A), west limb

The 6702A coronal line was not visible on any of the observation dates in June at the position angles indicated for the 6374A line.

Table 91a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date	Degrees north of the solar equator																					Degrees south of the solar equator																				
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.7a	-	-	-	-	2	2	3	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	2	2	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2	2	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	4	3	3	2	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-

Table 92a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date	Degrees north of the solar equator																					Degrees south of the solar equator																				
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.7a	-	-	-	-	-	-	-	-	2	2	2	3	3	2	4	4	6	8	7	6	6	7	6	5	4	5	3	2	2	2	2	2	3	3	2	-	-
2.7a	-	-	-	-	-	-	-	-	-	-	2	2	-	2	3	5	5	4	5	4	4	4	5	4	3	5	4	3	2	2	-	-	-	-	-	-	-
6.7a	2	-	-	-	-	-	-	-	-	2	2	4	5	7	6	6	7	7	5	6	7	7	8	6	5	5	4	3	2	-	-	-	-	-	-	-	-
7.6	4	2	2	3	3	2	-	2	2	3	4	5	6	7	8	7	7	8	9	8	8	7	8	7	6	6	5	3	3	2	2	2	2	3	3	3	2
8.7a	-	-	-	-	-	-	-	3	3	2	3	4	4	5	5	8	5	6	5	5	5	4	5	4	5	4	4	4	5	3	2	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	2	2	3	4	4	4	3	3	4	5	6	7	6	5	6	5	4	4	3	2	2	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	4	4	4	4	5	4	3	3	4	5	3	3	2	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	2	3	4	5	5	6	5	7	5	4	3	3	3	2	4	3	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	3	2	3	2	3	-	-	2	3	3	3	3	3	3	4	5	5	6	5	3	4	4	4	5	3	-	2	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	2	2	3	4	5	5	5	6	7	8	7	7	7	6	5	5	6	7	4	3	2	-	-	-	-	-	-	-	-
16.7	2	3	2	2	2	-	-	2	2	2	5	6	4	4	5	5	10	11	8	7	8	7	6	5	8	9	5	3	2	2	-	-	3	2	3	3	3
17.7a	3	2	2	3	3	2	2	2	-	3	4	5	5	5	4	4	8	7	7	7	8	7	6	5	7	5	4	3	2	2	2	3	2	2	3	3	3
20.7a	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	4	3	3	3	3	2	3	2	4	4	4	2	3	-	-	-	-	-	-	-	-
23.8a	-	-	-	-	-	-	-	-	-	-	2	3	3	2	3	3	3	3	4	3	3	4	4	3	4	3	2	2	3	2	3	2	-	-	3	2
28.6a	-	-	-	-	-	-	-	-	2	2	3	3	3	4	5	7	6	6	5	6	8	7	7	5	5	4	5	4	3	2	2	2	-	-	-	-	-
29.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	4	4	4	5	4	5	5	4	3	4	3	4	3	2	2	2	3	2	-	-	-
30.7	3	3	3	3	4	3	2	2	-	2	3	3	4	5	6	12	11	8	9	8	7	7	8	6	5	6	6	7	3	4	2	2	2	2	2	2	3

Table 93a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

The 6702A coronal line was not visible on any of the observation dates in June at the position angles indicated for the 6374A line.

Table 91b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date	Degrees south of the solar equator																				Degrees north of the solar equator																				
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	3	2	2	-	-	-	-	-
2.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	4	3	3	2	-	-	-	-	-	-
8.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-
17.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	-	-	-	-	-	-	-	-
20.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-
30.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 92b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date	Degrees south of the solar equator																				Degrees north of the solar equator																				
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1954																																					
Jun 1.7a	-	-	-	-	-	-	-	-	-	-	2	3	4	6	7	7	6	9	8	8	7	6	6	7	8	8	7	5	3	2	2	-	-	-	-	-	-
2.7a	-	-	-	-	-	-	-	-	-	2	2	2	4	3	4	3	6	6	5	6	6	5	4	4	3	4	4	3	2	-	-	-	-	-	-	-	-
6.7a	-	-	-	-	-	-	-	-	2	2	3	3	4	5	7	6	6	6	7	6	6	5	7	7	8	5	3	2	2	3	2	2	2	2	2	3	2
7.6	2	3	3	2	3	2	2	2	3	2	4	2	4	5	7	7	8	8	9	7	8	7	8	8	7	6	4	-	2	-	-	2	4	4	3	3	4
8.7a	-	-	-	-	-	-	-	-	2	2	3	4	3	3	2	3	4	4	5	4	4	5	4	4	3	3	3	3	2	2	-	-	-	-	-	-	-
9.7a	-	-	-	-	-	-	-	-	-	2	3	5	4	5	5	4	5	5	5	6	6	5	6	6	7	6	3	3	2	2	-	-	-	-	-	-	-
11.7a	-	-	-	-	-	-	-	-	-	2	2	2	3	2	2	3	3	3	2	2	3	3	3	2	2	3	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	2	3	3	4	4	4	5	4	6	4	4	4	6	5	4	3	3	4	3	3	2	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	2	2	3	3	2	3	4	4	4	3	4	3	4	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	3	2	3	2	3	3	4	5	4	5	7	8	8	7	7	7	6	5	3	2	2	-	2	2	-	-	-	-	-	-
16.7	3	2	2	2	3	2	2	2	2	2	2	7	6	7	7	7	7	8	8	7	8	9	8	7	6	5	2	3	2	2	2	3	2	3	3	3	2
17.7a	3	2	2	-	-	2	2	3	2	2	3	4	5	4	3	4	6	5	8	7	7	7	7	5	6	4	-	2	3	2	3	3	3	3	3	2	3
20.7a	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	4	3	3	3	3	4	3	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-
23.8a	2	2	2	2	3	2	3	3	3	2	2	2	3	3	4	4	4	3	4	5	6	5	5	4	4	3	5	4	4	2	2	-	-	-	-	-	-
28.6a	-	-	-	-	-	-	-	-	-	2	3	3	4	7	8	7	8	6	8	7	7	5	4	7	8	7	5	4	2	-	-	-	-	-	-	-	-
29.7a	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-
30.7	3	3	3	4	3	2	2	3	3	3	4	5	10	11	10	9	8	8	12	11	8	9	10	6	10	9	8	7	5	3	2	2	2	2	3	2	3

Table 93b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

The 6702A coronal line was not visible on any of the observation dates in June at the position angles indicated for the 6374A line.

[illegible] No. 94

[illegible] Observation, Climax, Colorado

January - June 1954

Date GCT	Green line threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1954								
Jan. 1.7	4	3	[illegible]	5	3	2	W	B
2.8	2	2	2	3	3	2	H	B
3.7	3	4	4	4	4	4	W	B
5.7	2	3	3	3	3	3	W	B
6.7	3	4	3	4	5	5	H	B
7.7	1	1	1	1	1	1	W	B
8.9	-	-	6	-	-	-	[illegible]	B
10.8	1	2	2	2	2	3	[illegible]	B
14.9	4	4	8	14	4	7	[illegible]	B
21.9	2	3	5	2	1	1	W	B
22.7	2	2	1	2	2	2	H	B
23.7	1	1	1	2	2	1	W	B
27.8	-	4	-	-	-	-	W	B
28.9	3	4	2	-	4	3	H	B
30.9	3	3	3	3	3	3	H	B
31.7	3	3	3	3	4	4	H	B
Feb. 1.7	4	4	5	4	4	3	H	B
2.7	4	5	4	4	5	4	W	B
3.8	6	-	-	-	-	-	[illegible]	B
4.7	3	4	4	5	5	5	W	B
5.7	1	2	2	2	2	2	H	B
6.8	1	1	1	2	2	2	W	B
7.7	5	2	2	2	2	1	H	B
8.7	1	1	2	2	2	2	W	B
9.7	1	2	1	2	2	2	H	B
10.8	3	3	3	4	5	4	H	B
11.7	7	5	4	3	3	2	H	B
12.8	4	4	4	5	7	5	W	B
15.9	11	5	4	4	4	12	H	B
17.7	3	4	4	3	3	3	[illegible]	B
18.7	4	4	4	5	5	-	W	B
21.8	3	4	2	5	5	5	H	B
24.8	4	4	3	5	4	5	W	B
25.8	5	4	4	5	3	-	H	B
28.7	4	2	5	3	5	3	W	B
Mar. 3.7	4	5	5	3	5	4	[illegible]	B
4.7	4	4	4	4	4	4	W	B
5.8	3	3	3	3	3	3	W	B
6.8	3	3	3	3	3	3	W	B
7.9	4	5	-	7	6	6	H	B
11.0	6	7	6	-	-	-	H	B
13.9	5	5	5	7	7	6	H	B
14.7	4	5	5	4	5	4	W	B
15.7	5	4	4	5	6	6	H	B
17.7	8	8	7	6	6	6	H	B
23.7	3	-	-	6	-	-	H	B
28.7	5	5	5	5	6	6	W	B
31.8	6	6	8	10	7	8	W	B
Apr. 1.7	4	4	3	5	5	5	H	B
3.7	4	4	3	5	5	5	W	B
5.7	6	6	5	6	6	6	H	B
6.7	6	6	8	7	7	6	W	B
7.8	9	9	7	9	9	8	H	B
8.9	10	11	11	11	-	-	H	B
9.6	14	10	11	10	8	9	H	B
10.6	14	14	13	-	13	13	H	B
12.7	6	6	6	7	7	7	H	B
13.7	9	8	6	9	11	7	W	B
15.6	7	7	6	7	7	8	W	B
16.7	4	5	5	4	5	5	H	B
17.8	4	5	6	5	6	5	H	B
18.8	5	6	7	6	6	5	H	B
19.7	7	9	8	9	10	10	H	B
20.6	9	9	8	11	11	-	W	B
21.6	9	7	6	12	7	6	W	B
22.7	7	8	8	7	8	6	[illegible]	B
23.6	5	5	4	5	5	5	H	B
24.6	14	>15	>15	>15	6	12	W	B
26.8	9	6	6	5	5	4	W	B
27.8	7	7	10	-	-	-	H	B
28.6	6	5	4	5	6	5	W	B
29.6	7	6	6	6	7	7	H	B
30.6	4	5	4	4	4	4	W	B
May 2.9	6	5	-	-	-	-	W	B
3.7	3	4	-	4	5	5	H	B
5.6	6	7	7	7	7	7	H	B
6.6	6	6	6	6	6	6	W	B
7.6	6	7	7	5	6	6	[illegible]	B
8.7	10	9	15	-	-	-	W	B
9.7	8	11	10	9	8	7	H	B
11.7	12	15	10	6	7	-	[illegible]	B
12.7	7	7	8	7	7	8	W	B
14.6	8	12	9	15	12	11	W	B
17.6	6	5	5	5	6	6	H	B
18.7	5	6	-	5	5	-	W	B
20.7	9	8	8	7	9	9	H	B
21.6	10	10	6	9	10	9	H	B
24.6	5	5	4	4	7	6	W	B
25.6	6	6	6	7	7	7	H	B
26.6	9	9	9	10	12	11	W	B
27.7	10	9	11	11	11	10	H	B
28.6	6	6	5	5	6	5	W	B
30.7	8	10	7	9	9	8	W	B
31.7	4	3	3	5	4	4	H	B
June 1.9	7	9	-	5	5	-	W	B
2.6	4	4	3	5	6	5	H	B
3.6	4	3	2	4	4	4	W	B
4.6	9	-	-	-	-	-	[illegible]	B
5.7	7	9	8	7	8	8	W	B
6.7	6	7	9	7	8	7	H	B
7.9	7	-	-	-	-	-	W	B
8.6	6	6	7	7	8	7	H	B
9.5	5	5	5	6	5	3	W	B
10.6	8	7	8	7	7	8	H	B
11.7	6	6	6	7	7	6	W	B
12.6	6	6	6	6	6	5	H	B
14.7	10	9	14	6	5	5	H	B
15.8	8	-	-	-	-	-	W	B
16.9	8	8	8	12	13	-	H	B
17.6	7	9	9	9	10	9	H	B
18.6	5	-	7	8	7	7	H	B
19.6	8	8	10	9	9	8	H	B
21.6	7	9	8	10	10	10	H	B
24.6	14	15	15	13	13	12	H	B
25.7	13	15	15	12	13	12	H	B
26.6	12	12	12	12	11	11	H	B
27.9	5	7	6	8	10	8	H	B
28.6	6	7	12	10	-	9	H	B
29.6	10	10	9	8	8	7	H	B
30.7	9	9	8	9	9	8	H	B

- No observation taken at position angle indicated.

B = Billings
H = Hanson
W = Weber

Table 95

Particulars of Observations, Sacramento Peak, New Mexico

January - June 1954

Date GCT	Greenline threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1954										
Jan. 1.7	7	6	6	7	7	7	7	7	B	Y
2.7	7	7	7	8	9	9	8	8	B	Y
3.8	8	8	8	9	8	9	9	9	S	Y
4.7	8	7	7	8	11	9	8	8	S	Y
5.7	4	3	4	5	4	4	4	5	R	Y
6.7	3	3	2	3	3	3	3	3	R	Y
7.9	5	4	5	5	4	5	5	4	B	Y
10.7	10	7	7	8	11	9	9	7	S	Y
11.7	4	4	4	4	5	4	4	4	R	Y
16.7	5	3	3	4	5	4	4	5	B	Y
21.8	15	8	13	9	9	8	6	5	S	Y
22.9	5	3	4	4	5	5	5	7	S	Y
23.7	4	3	4	4	4	4	4	4	R	Y
26.7	6	5	5	5	5	5	5	5	B	Y
31.7	6	5	5	5	6	5	6	5	R/B	Y
Feb. 2.7	5	5	5	5	5	5	5	4	S	Y
3.7	4	3	4	4	4	4	4	4	S	Y
4.7	4	4	4	4	4	6	5	6	R	Y
5.7	5	6	5	5	6	5	6	5	R	Y
6.9	8	8	8	9	10	10	10	11	B	Y
7.7	6	5	6	6	7	6	6	7	B	Y
8.7	4	4	4	5	5	4	4	4	S	Y
9.9	5	5	5	5	6	8	5	6	S	Y
10.6	10	11	10	11	12	11	11	11	R	Y
11.7	4	3	3	3	4	4	4	4	R	Y
13.7	7	6	6	6	6	6	6	6	B	Y
14.7	5	5	5	5	5	5	5	5	S	Y
16.7	8	7	5	7	7	7	8	9	B	Y
17.8	8	7	9	8	10	9	7	9	R	Y
18.7	7	7	7	7	7	7	7	7	B	Y
19.8	10	8	10	10	14	15	14	>15	R	Y
20.7	5	5	5	5	5	5	5	5	S	Y
21.7	4	5	5	5	4	5	5	5	S	Y
22.8	4	5	5	4	5	5	5	5	R	Y
24.7	9	7	6	8	8	7	8	7	B	Y
25.7	4	4	3	4	5	5	5	4	B	Y
26.7	7	8	8	8	8	9	9	9	S	Y
28.7	4	4	4	4	4	4	4	4	R	Y
Mar.1.7	3	3	3	3	3	4	4	4	R	Y
4.9	5	4	3	4	-	-	-	-	S	Y
5.8	5	5	5	5	5	5	5	6	R	Y
6.7	4	4	4	4	6	7	5	>15	R	Y
7.7	6	6	6	6	6	6	6	6	R	Y
14.8	11	11	12	14	14	14	14	14	S	Y
17.8	8	8	8	6	7	7	7	7	R	Y
25.8	12	11	14	13	12	12	11	11	R	Y
26.7	4	4	4	4	4	5	5	4	R	Y
27.7	4	4	4	3	4	4	4	4	S	Y
31.7	5	4	4	4	5	4	3	5	R	Y

Date GCT	Greenline threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1954										
Apr. 1.7	7	5	5	5	5	6	6	6	S	Y
2.7	5	5	5	6	6	7	7	7	S	Y
3.7	8	8	8	7	8	8	7	7	S	Y
4.8	5	5	5	5	8	7	7	6	R	Y
6.7	4	4	4	4	4	4	4	4	R	Y
7.7	3	3	4	3	3	3	3	3	S	Y
15.8	12	13	14	15	>15	>15	15	13	S	Y
18.7	11	10	11	11	10	9	10	11	R	Y
19.8	13	14	14	14	>15	>15	>15	>15	S	Y
20.7	11	10	10	11	11	13	11	-	S	Y
23.8	>15	>15	>15	>15	>15	>15	>15	>15	R	Y
27.8	8	10	11	12	14	12	13	9	S	Y
28.7	5	6	5	6	6	5	5	5	R	Y
May 2.6	3	3	3	3	5	4	3	3	S	Y
3.7	8	9	8	8	8	8	8	8	S	Y
4.7	9	9	9	9	10	9	9	9	R	Y
5.7	9	9	10	10	10	8	7	9	R	Y
6.7	11	10	9	10	11	11	10	9	R	Y
8.7	12	13	12	13	13	11	11	11	S	Y
10.7	13	12	12	12	12	12	11	11	S	Y
11.8	10	10	12	14	14	13	13	14	R	Y
12.8	8	8	8	9	9	8	8	8	R	Y
19.7	8	8	8	8	7	8	7	7	R	Y
23.6	7	7	7	6	7	7	6	6	R	Y
25.6	8	8	8	8	8	7	7	8	R	Y
26.7	9	9	9	9	9	10	10	10	S	Y
28.7	7	7	7	8	8	8	8	8	S	Y
30.7	10	10	10	10	10	10	10	9	S	Y
31.7	6	6	7	7	7	6	6	5	S	Y
May 1.7	10	10	10	9	10	10	9	9	S	Y
2.7	10	10	10	9	10	9	9	10	S	Y
6.7	8	7	8	8	7	7	8	9	S	Y
7.6	4	4	5	5	4	5	5	4	S	Y
8.7	12	12	12	12	12	12	12	12	S	Y
9.7	8	8	8	8	9	8	8	7	S	Y
11.7	13	11	11	10	12	11	12	15	M	Y
12.7	15	13	12	13	13	11	12	14	M	Y
14.7	5	6	5	7	6	6	6	5	M	Y
15.7	9	8	8	8	10	10	9	8	S	Y
16.7	7	8	7	7	7	7	7	8	S	Y
17.7	9	8	9	9	10	9	9	8	S	Y
20.7	9	9	9	11	13	11	9	9	M	Y
23.8	9	8	7	6	5	6	7	7	S	Y
28.6	7	7	6	7	6	6	6	6	M	Y
29.7	10	10	11	11	15	-	-	-	M	Y
30.7	5	6	5	5	6	6	6	6	M	Y

- No observation taken at position angle indicated.

B = Bergstrom
M = Mitchell
R = Ramsey
S = Schnable
Y = Yu

Table 96

Zürich Provisional Relative Sunspot Numbers

June 1954

Date	R_Z *	Date	R_Z *
1	0	17	0
2	0	18	0
3	0	19	0
4	0	20	0
5	0	21	0
6	0	22	0
7	0	23	0
8	0	24	0
9	0	25	0
10	0	26	0
11	0	27	0
12	0	28	0
13	0	29	0
14	0	30	0
15	0	Mean:	0.2
16	0		

* Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 97

American Relative Sunspot Numbers

May 1954

Date	R_A'	Date	R_A'
1	0	17	0
2	0	18	0
3	0	19	0
4	0	20	0
5	1	21	0
6	0	22	0
7	0	23	0
8	0	24	0
9	0	25	0
10	0	26	0
11	0	27	0
12	0	28	0
13	0	29	0
14	4	30	0
15	1	31	0
16	0	Mean:	0.2

Table 98

Solar Flares, June 1954

No solar flares were reported for the month of June.

Table 99

Indices of Geomagnetic Activity for May 1954

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1954	C	Values Kp Three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	0.1	3-	1+	1o	1-	1o	0+	0+	2-	9o	Five
2	0.4	2+	4-	2+	1+	1-	1o	1+	1+	14o	Quiet
3	0.2	2-	3-	1o	1+	1+	2-	1o	2+	13o	
4	1.0	2+	2o	2+	2+	3-	3+	3+	4+	23-	1
5	0.3	2+	2+	3-	3-	2+	2o	1+	1+	17o	7
											17
6	0.2	3-	3-	2+	1o	0+	0+	1o	0+	11-	25
7	0.1	0+	1-	0+	0+	1o	2o	1+	2-	8-	30
8	0.8	2o	1+	1o	1+	2+	4-	4o	3o	19-	
9	0.9	4-	3+	3o	3-	2+	2-	2+	3o	22o	
10	0.6	1o	1o	2+	1+	1o	2o	4-	2+	15-	
11	0.9	4-	3o	3+	3+	2+	2o	3o	2+	23o	Five
12	0.4	3-	1-	1o	2o	3-	2-	3-	2+	16-	Disturbed
13	0.5	3-	2o	2-	2-	3o	2+	3-	2o	18o	
14	0.2	3+	2o	2o	3-	0+	1+	2-	1+	15-	4
15	0.7	2-	3-	2o	1+	4-	3-	2-	3-	18+	9
											11
16	0.2	3-	3-	1+	1+	1-	1-	2-	1-	12-	18
17	0.0	0+	0+	0+	0+	0+	1-	1+	2-	5+	21
18	0.9	3+	4-	1+	3o	3-	2-	4-	3o	22+	
19	0.8	3+	2o	2-	3-	2+	2+	3+	3+	21o	
20	0.7	2+	2+	2-	1+	2+	2o	4-	3+	19o	
21	0.8	4-	2+	2o	2+	4-	4-	3-	2-	22o	Ten
22	0.2	2o	1+	2-	1-	0+	1-	2-	3o	11+	Quiet
23	0.2	3-	2-	3-	1o	0+	0+	1+	2o	12o	
24	0.4	2-	2-	2-	2o	2-	1+	2+	2o	14+	1
25	0.2	2o	2o	1+	1+	1o	1-	1+	1-	10+	6
											7
26	0.2	2-	2o	2-	1-	2-	2o	1+	2-	13-	16
27	0.2	2+	3o	1+	1-	1-	1o	0+	0+	10-	17
28	0.2	0+	1-	1+	3o	1+	1o	2o	2o	12-	22
29	0.7	3+	2o	4-	1+	2o	2o	2o	2o	18+	25
30	0.1	2-	1+	1+	2-	1o	1-	1-	2-	10o	26
31	0.4	1o	1-	1o	2o	2+	2+	3-	2-	14-	27
											30
Mean:	0.44										

Table 100

Sudden Ionosphere Disturbances Observed at Washington, D. C.

June 1954

No sudden ionosphere disturbances were observed during the month of June.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder, Colorado; Attention: Mr. Vaughn Agy.

GRAPHS OF IONOSPHERIC DATA

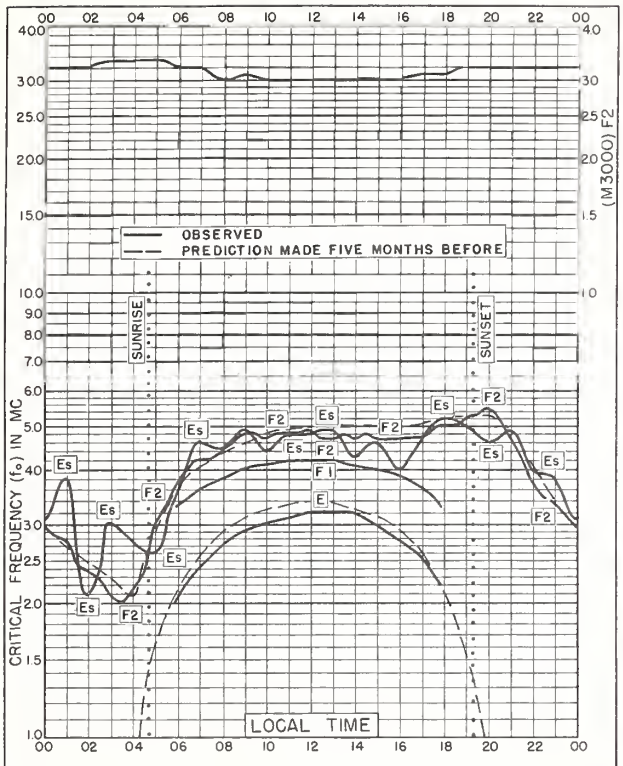


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W JUNE 1954

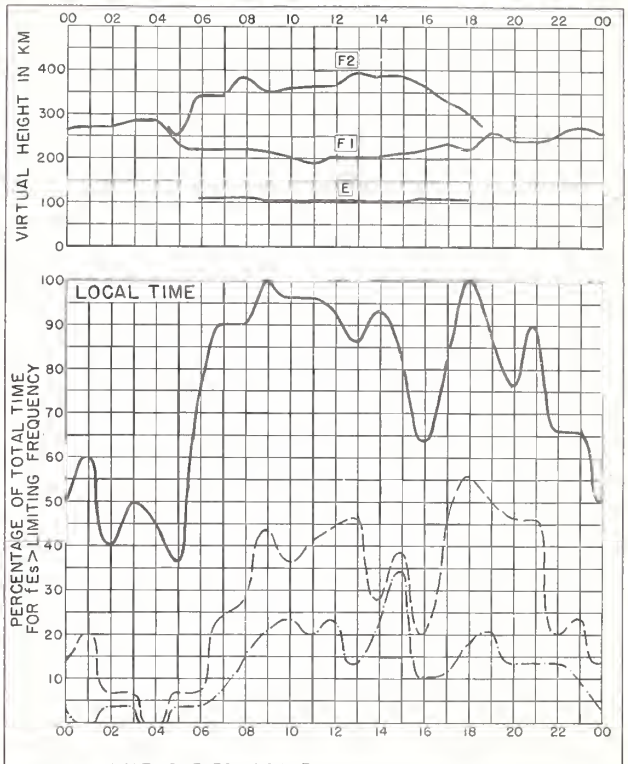


Fig. 2. WASHINGTON, D.C. JUNE 1954

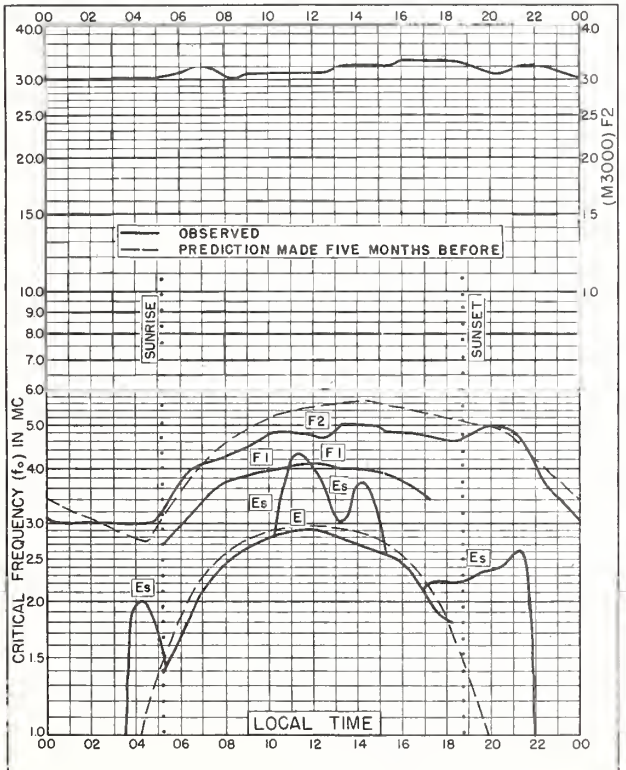


Fig. 3. ADAK, ALASKA
51.9°N, 176.6°W APRIL 1954

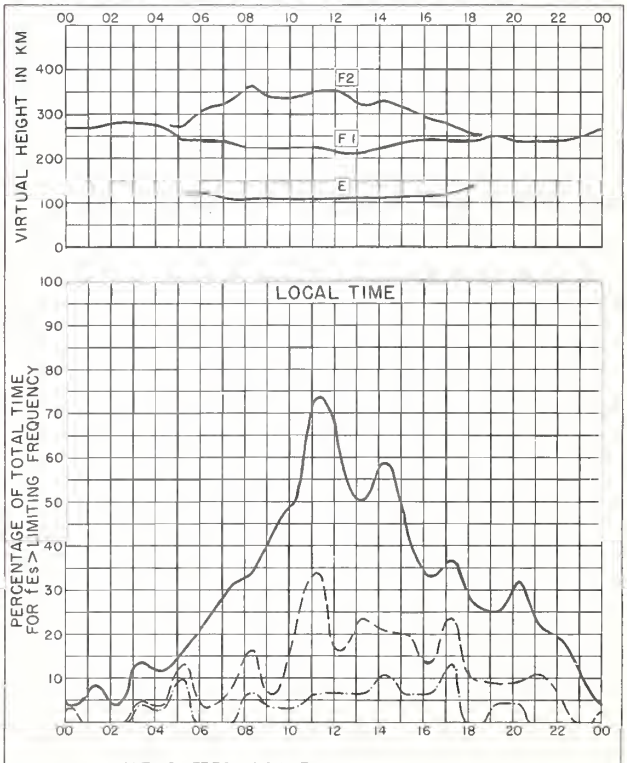


Fig. 4. ADAK, ALASKA APRIL 1954

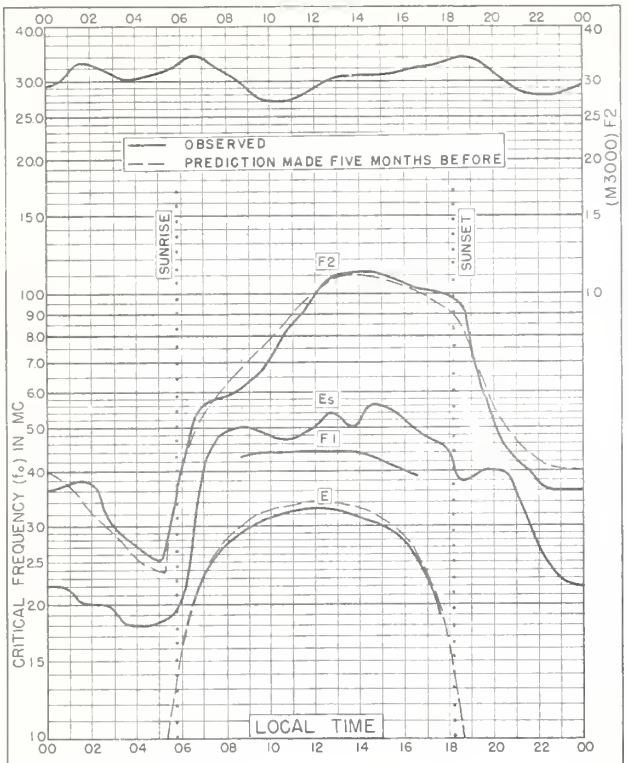


Fig. 5. MAUI, HAWAII
20.8°N, 156.5°W
APRIL 1954

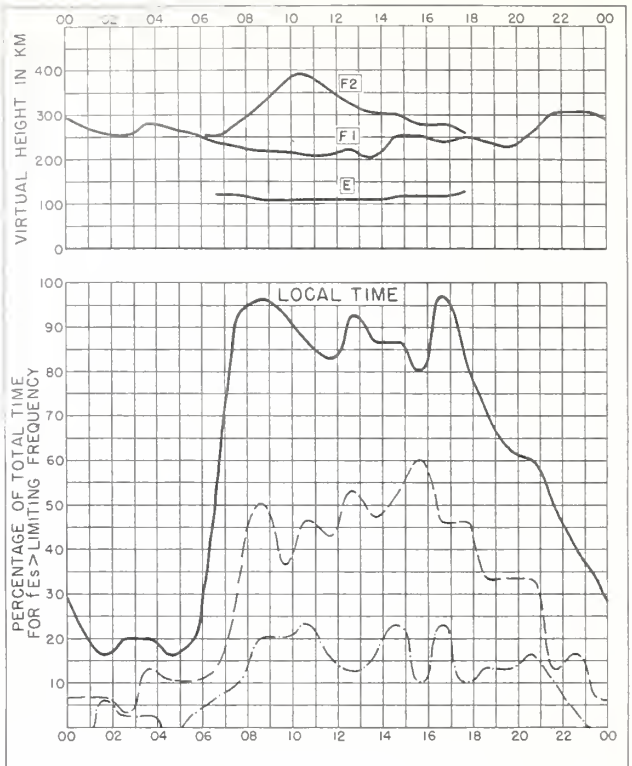


Fig. 6. MAUI, HAWAII
APRIL 1954

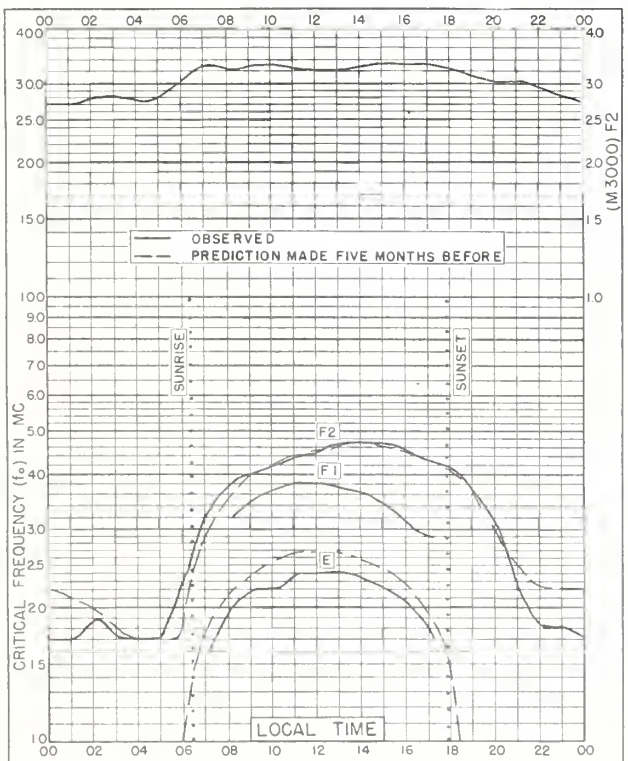


Fig 7. UPSALA, SWEDEN
59.8°N, 17.6°E
MARCH 1954

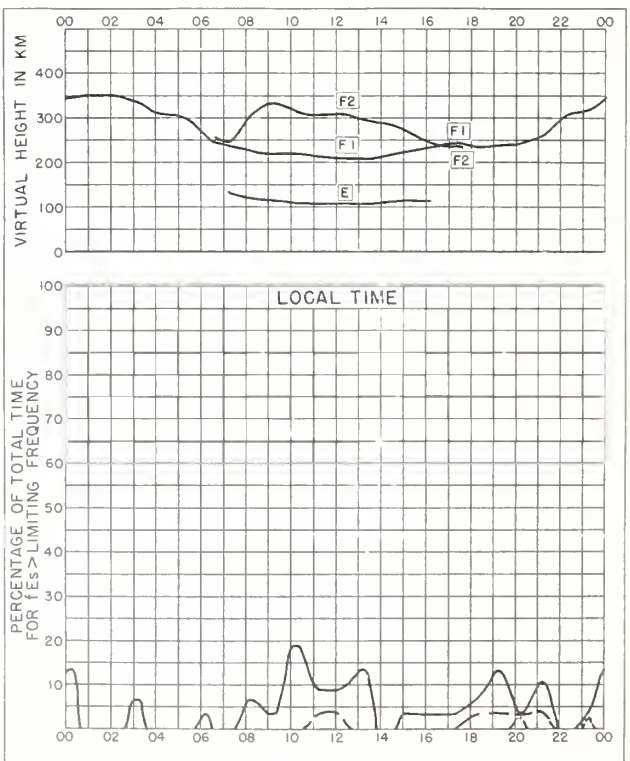


Fig 8. UPSALA, SWEDEN
MARCH 1954

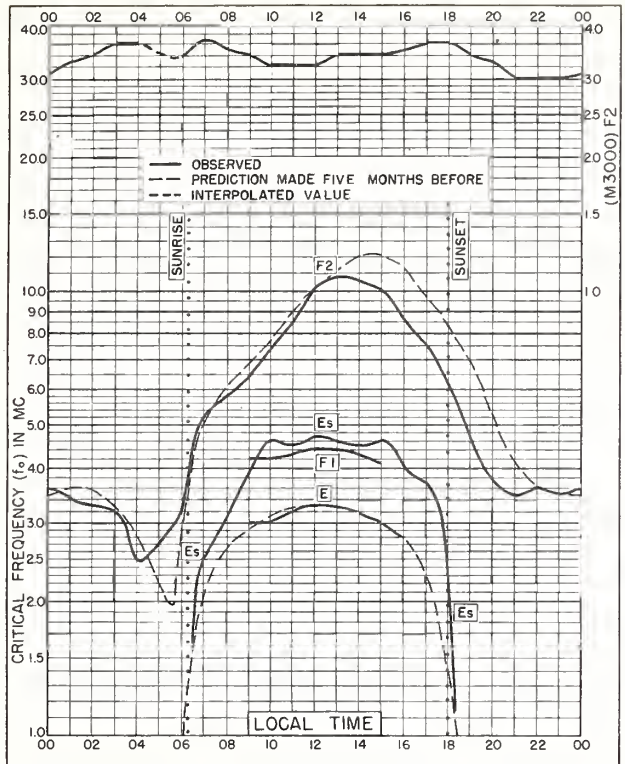


Fig. 9. OKINAWA I.
26.3°N, 127.8°E MARCH 1954

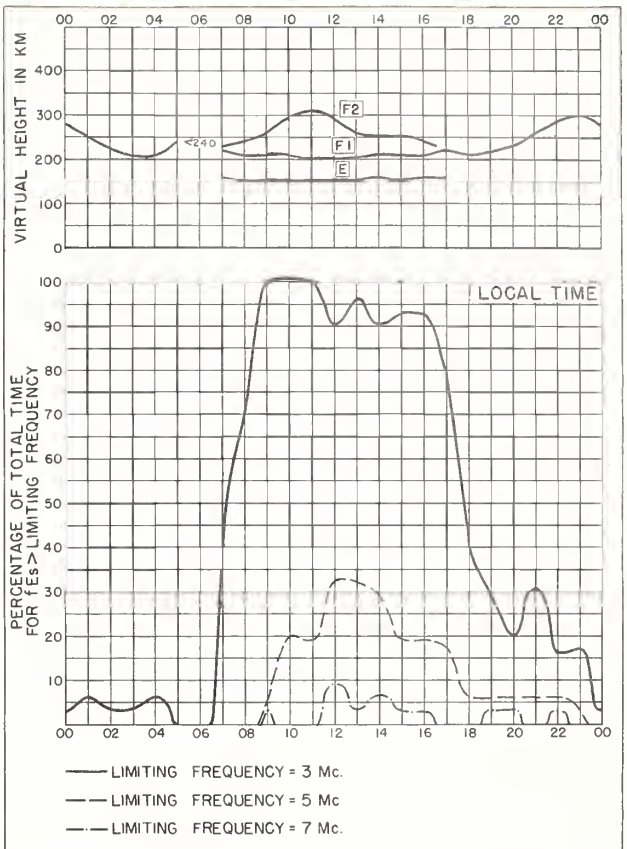


Fig. 10. OKINAWA I. MARCH 1954

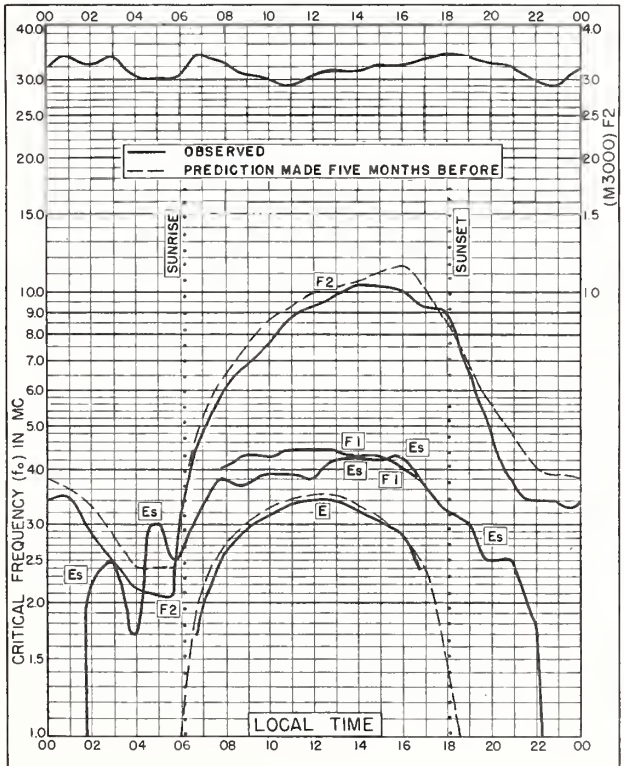


Fig. 11. PANAMA CANAL ZONE
9.4°N, 79.9°W MARCH 1954

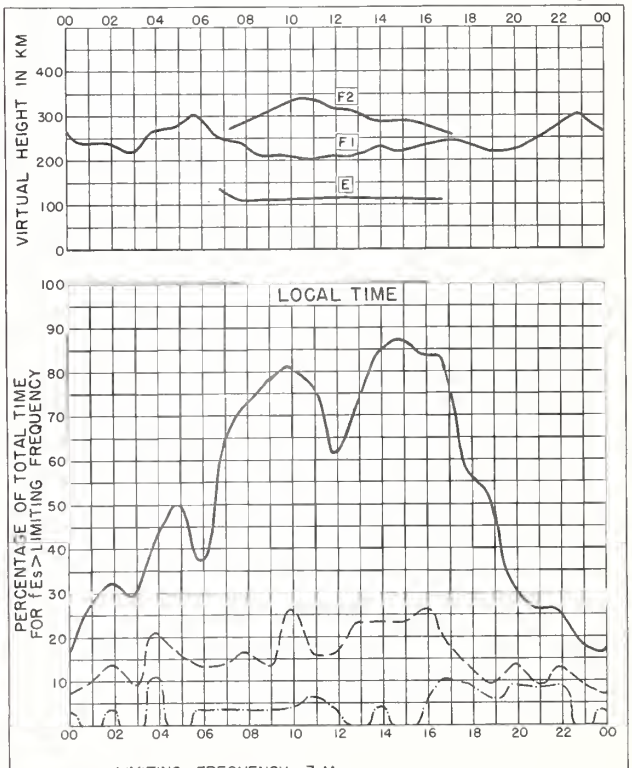


Fig. 12. PANAMA CANAL ZONE MARCH 1954

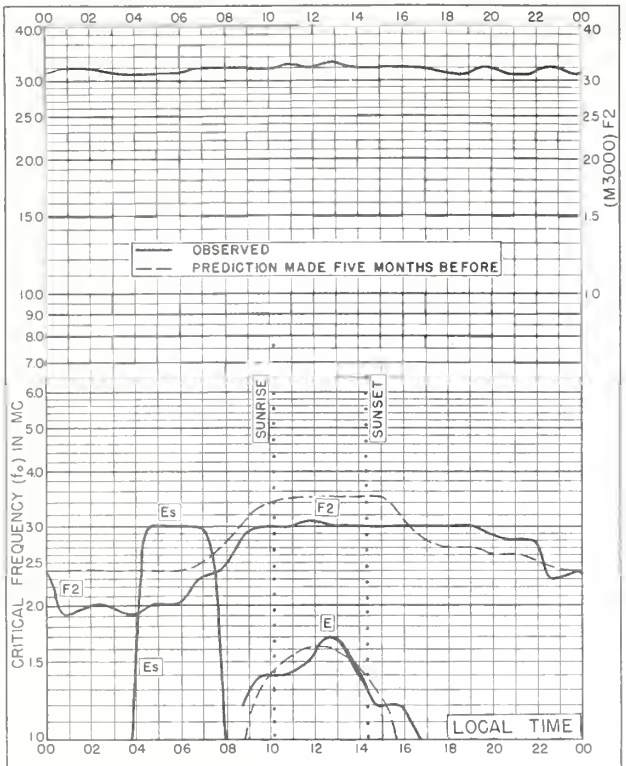
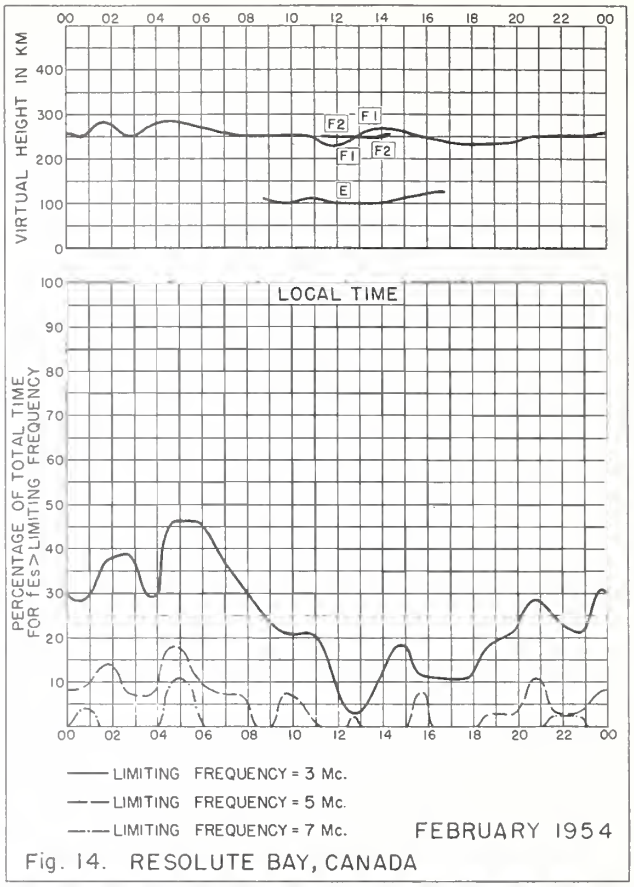


Fig. 13. RESOLUTE BAY, CANADA
74.7°N, 94.9°W FEBRUARY 1954



FEBRUARY 1954
Fig. 14. RESOLUTE BAY, CANADA

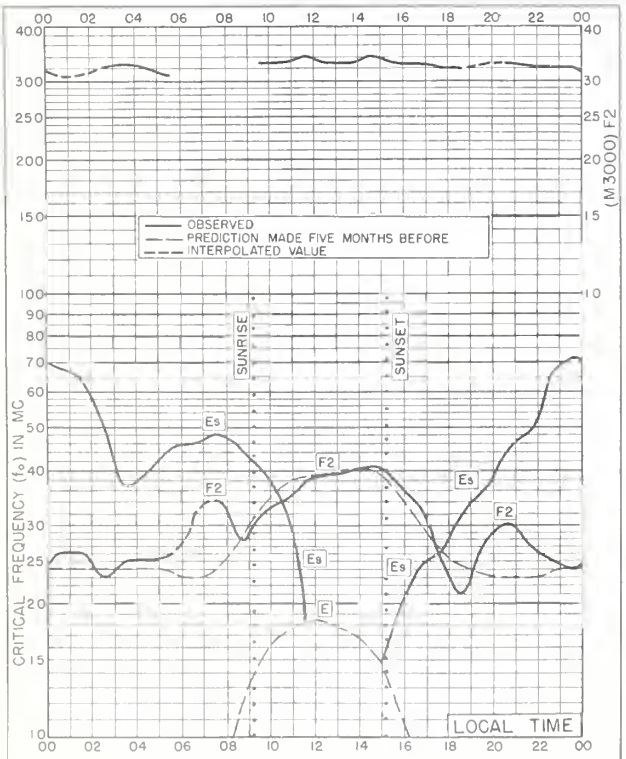


Fig. 15. POINT BARROW, ALASKA
71.3°N, 156.8°W FEBRUARY 1954

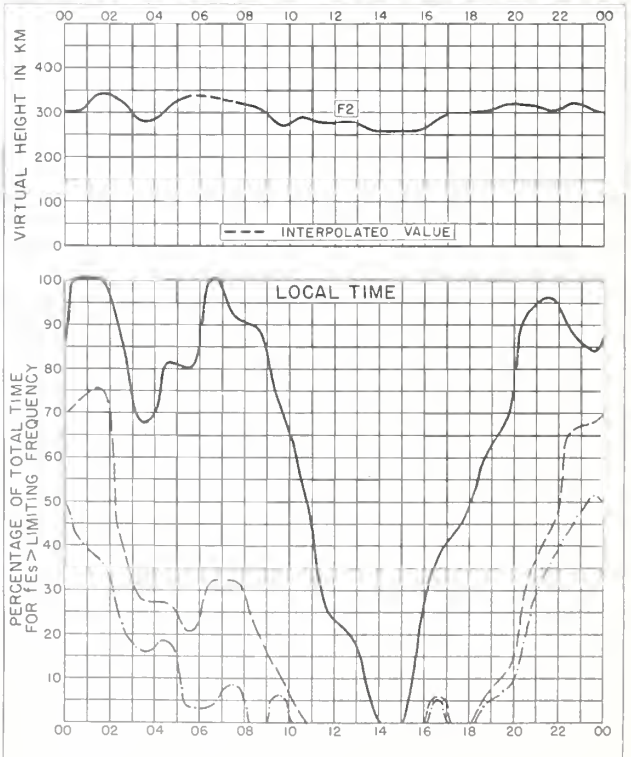


Fig. 16. POINT BARROW, ALASKA FEBRUARY 1954

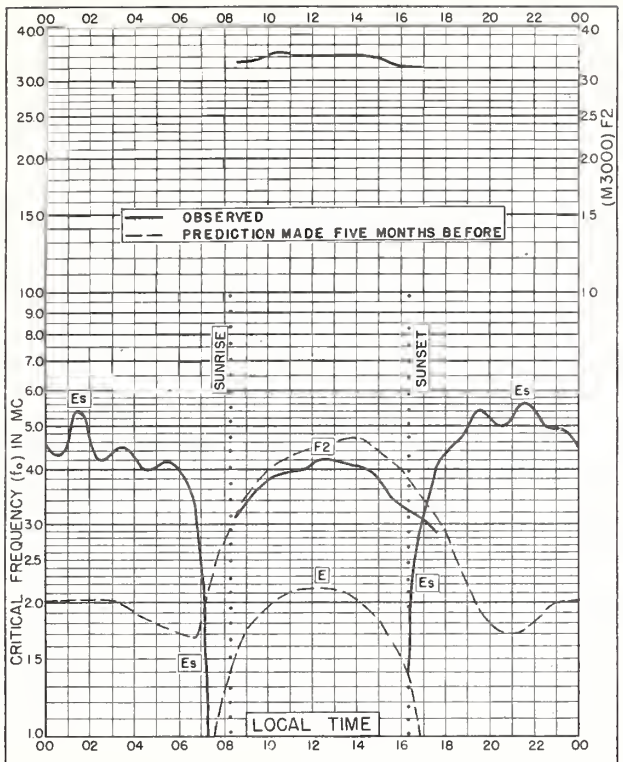


Fig. 17. REYKJAVIK, ICELAND
64.1°N, 21.8°W FEBRUARY 1954

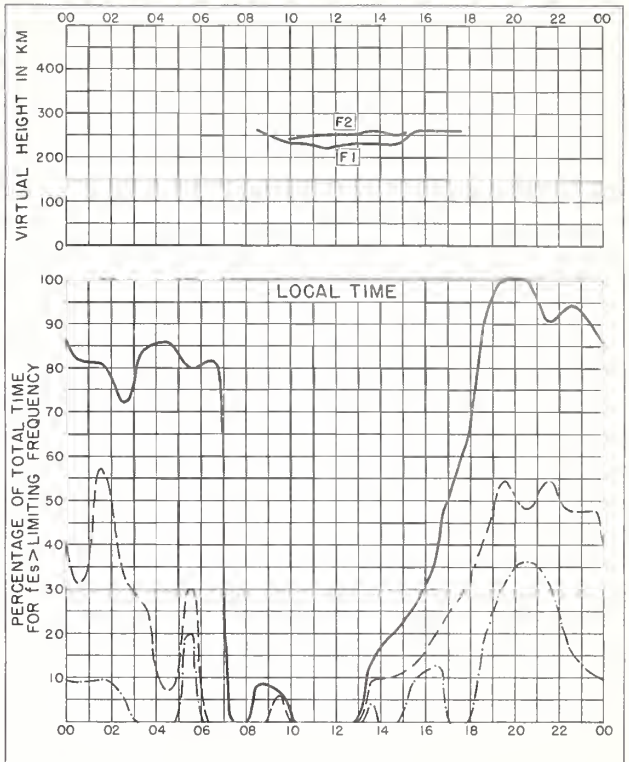


Fig. 18. REYKJAVIK, ICELAND FEBRUARY 1954

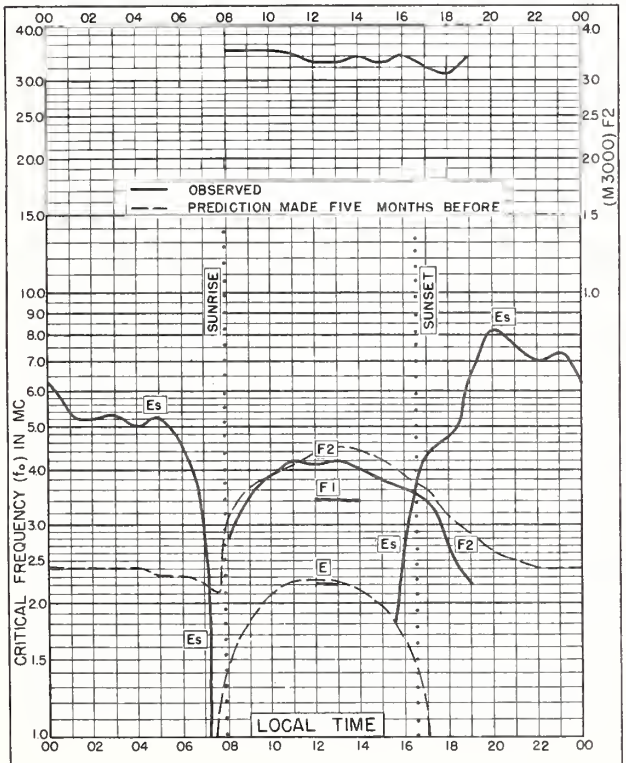


Fig. 19. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W FEBRUARY 1954

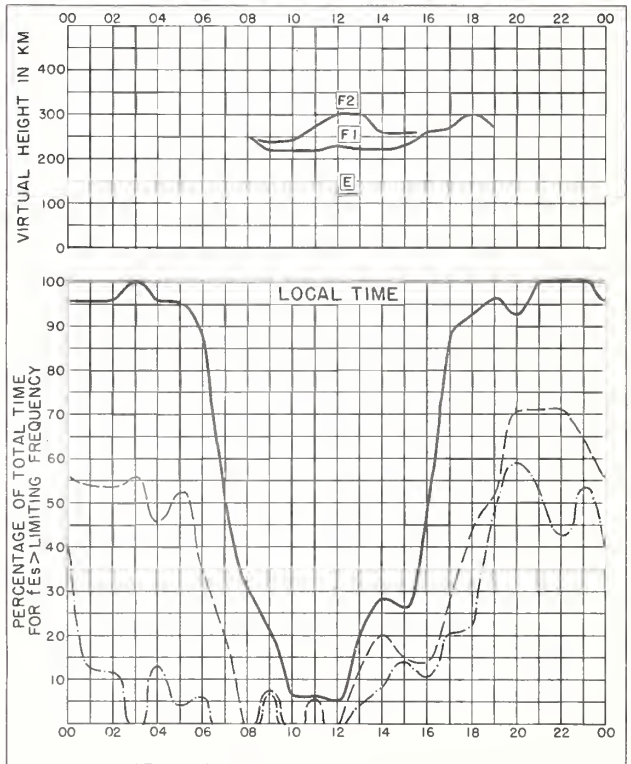


Fig. 20. NARSARSSUAK, GREENLAND FEBRUARY 1954

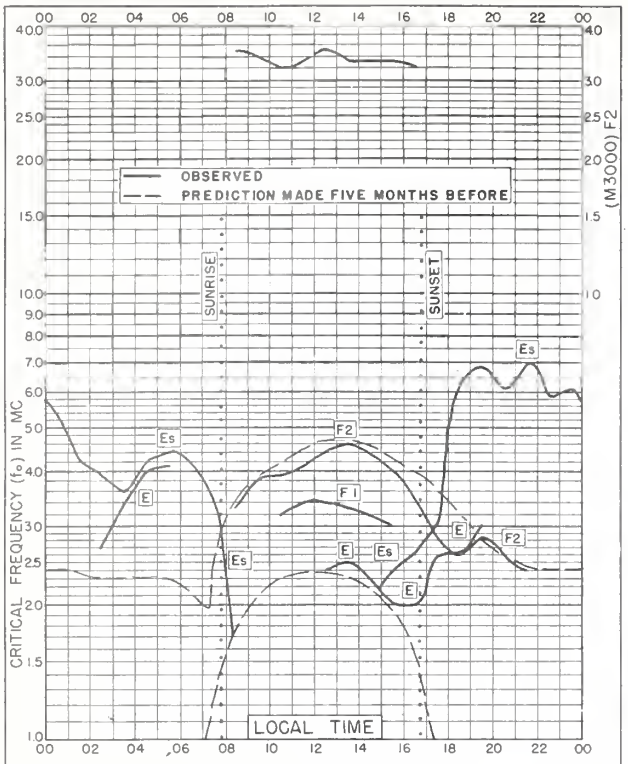


Fig. 21. FORT CHIMO, CANADA
58.1°N, 68.3°W FEBRUARY 1954

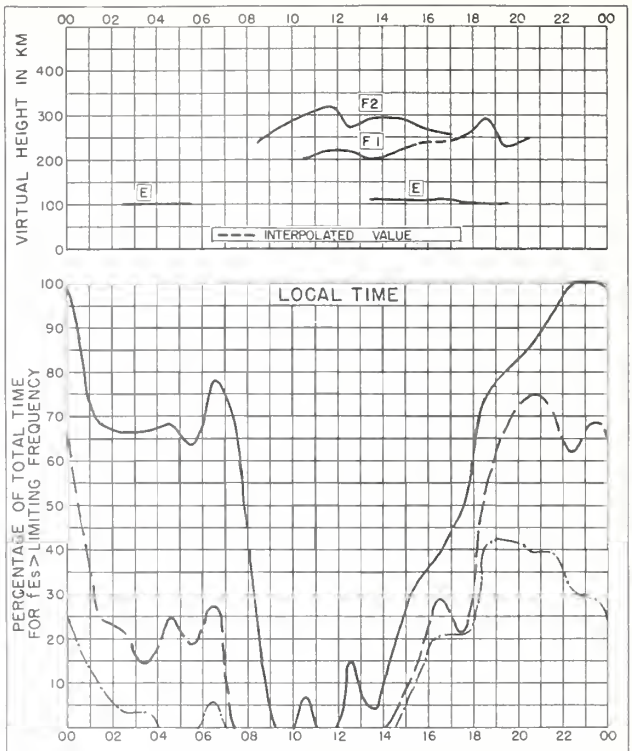


Fig. 22. FORT CHIMO, CANADA FEBRUARY 1954

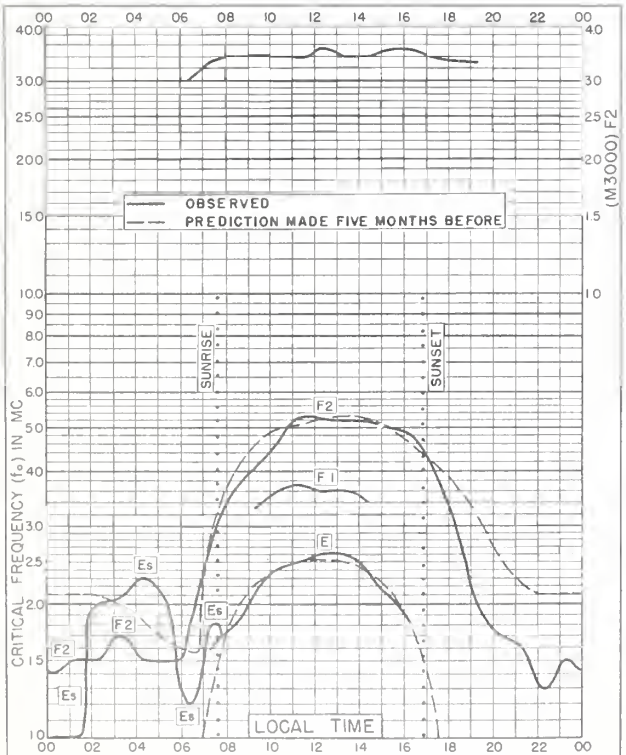


Fig. 23. PRINCE RUPERT, CANADA
54.3°N, 130.3°W FEBRUARY 1954

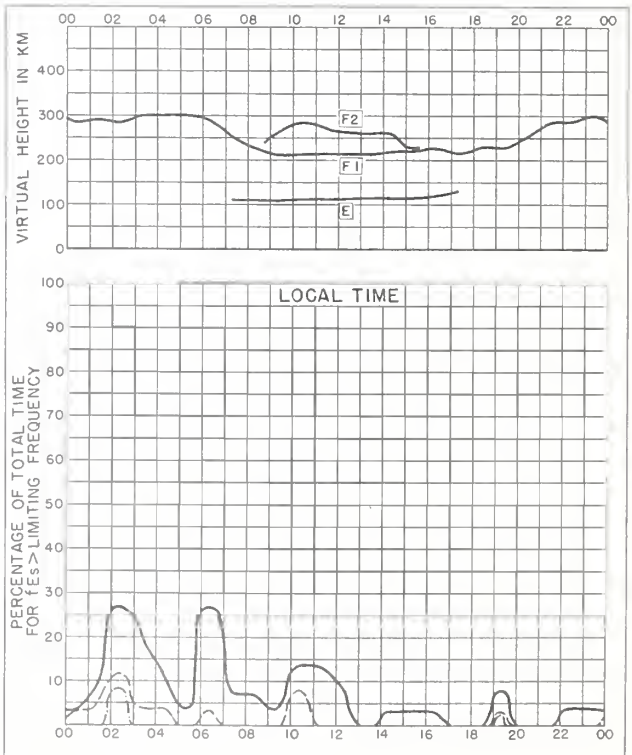


Fig. 24. PRINCE RUPERT, CANADA FEBRUARY 1954

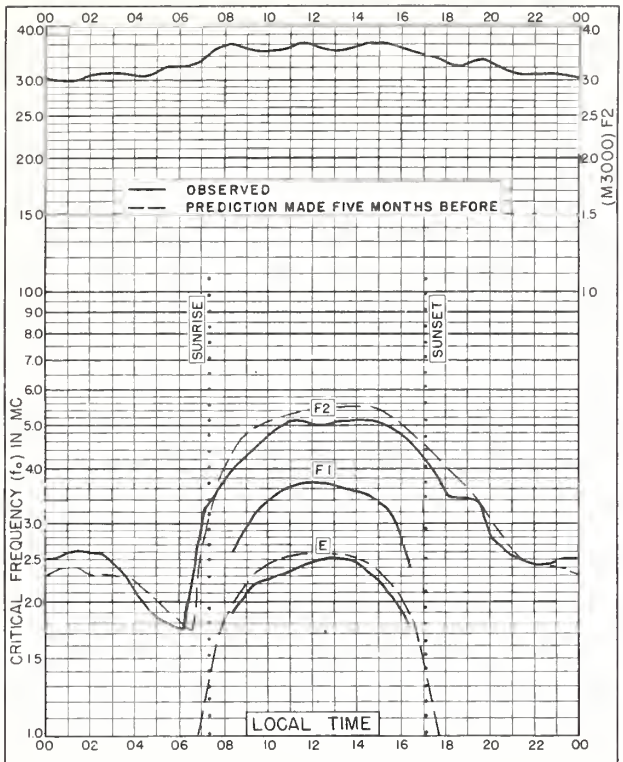


Fig. 25. De BILT, HOLLAND
52.1°N, 5.2°E FEBRUARY 1954

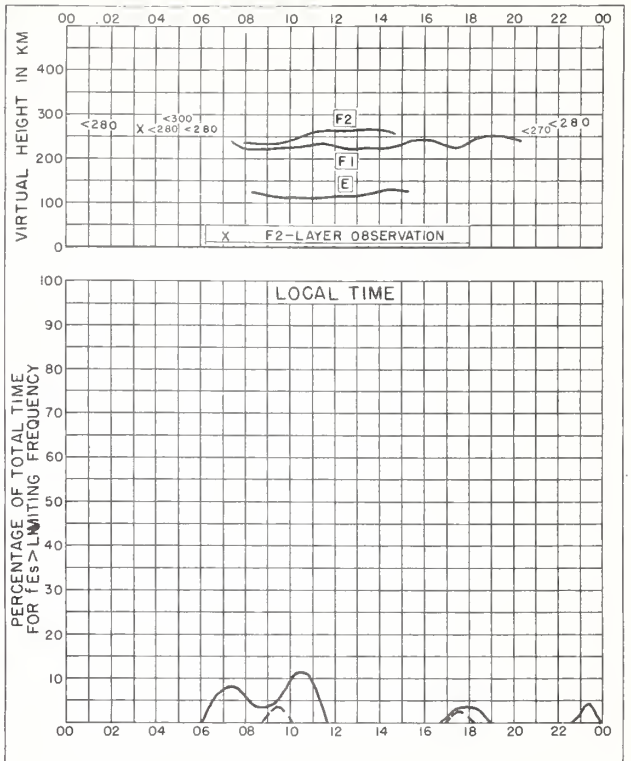


Fig. 26. De BILT, HOLLAND FEBRUARY 1954

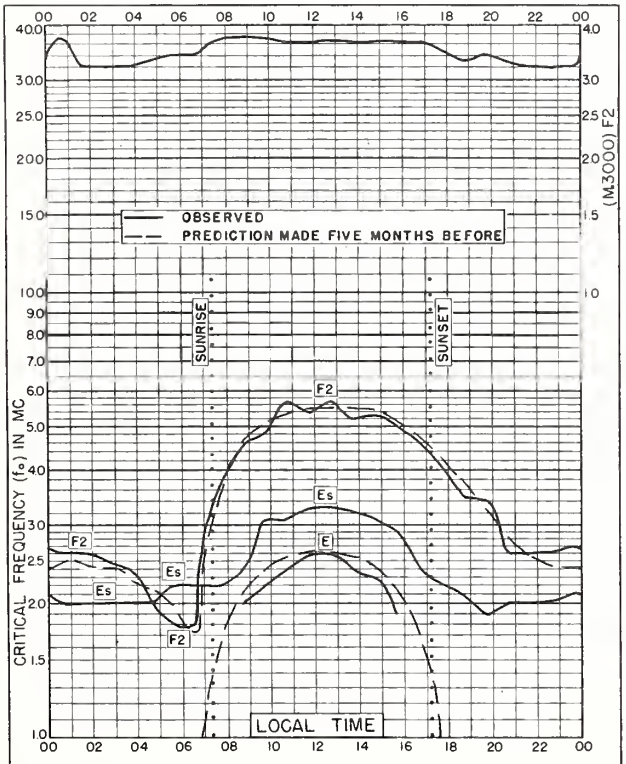


Fig. 27. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E FEBRUARY 1954

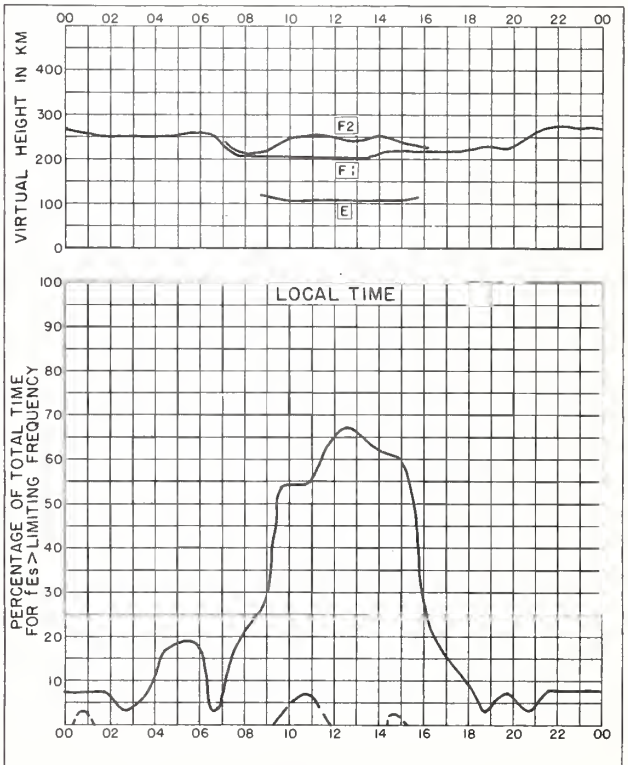


Fig. 28. LINDAU/HARZ, GERMANY FEBRUARY 1954

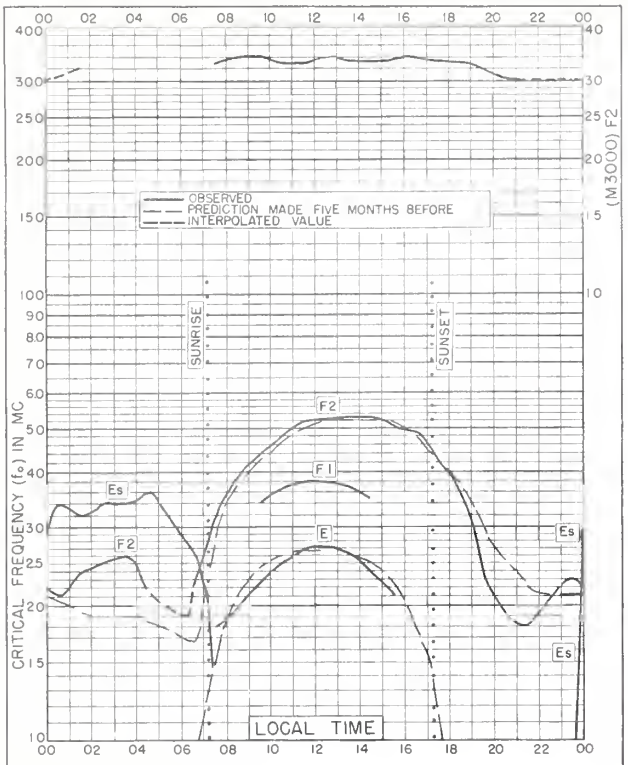


Fig. 29. WINNIPEG, CANADA
49.9°N, 97.4°W FEBRUARY 1954

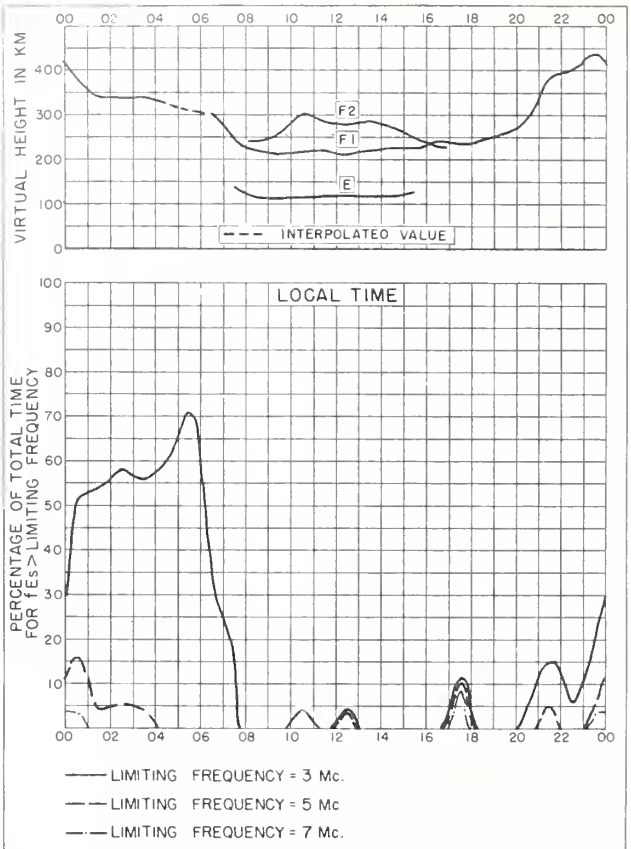


Fig. 30. WINNIPEG, CANADA FEBRUARY 1954

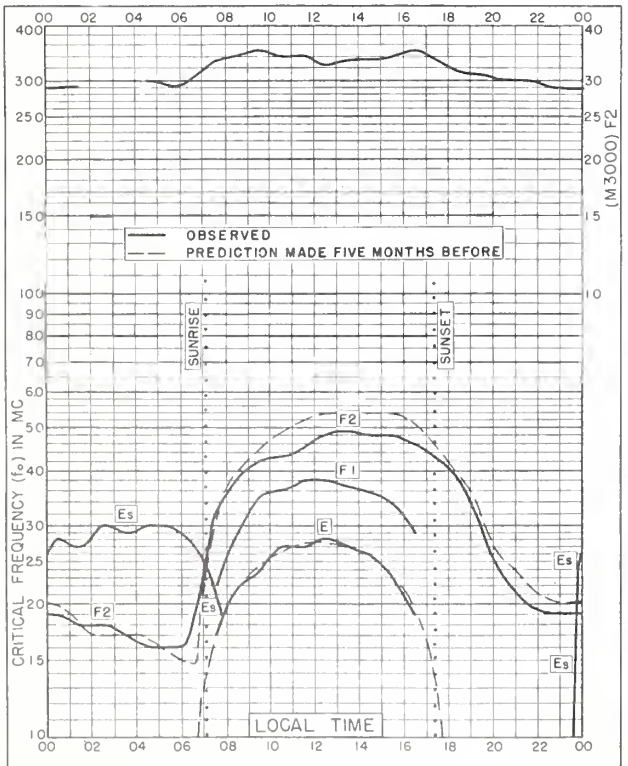


Fig. 31. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W FEBRUARY 1954

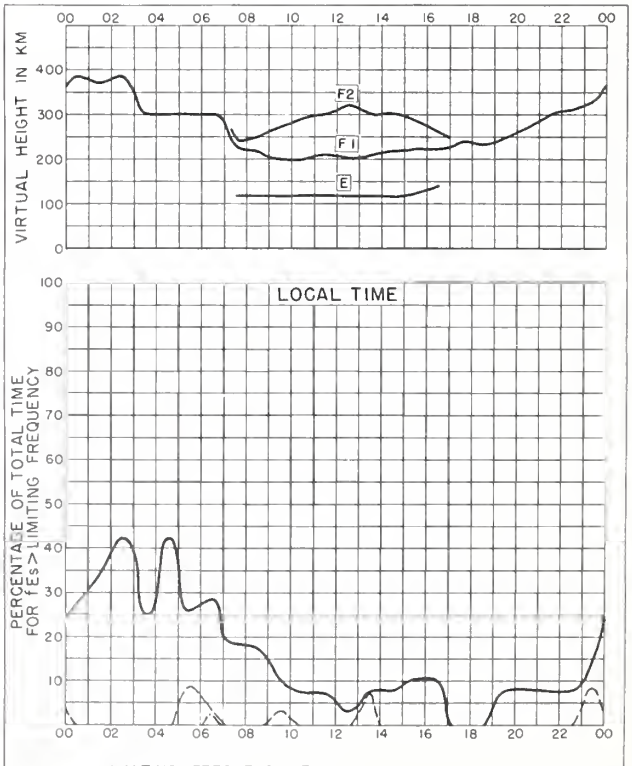


Fig. 32. ST. JOHN'S, NEWFOUNDLAND FEBRUARY 1954

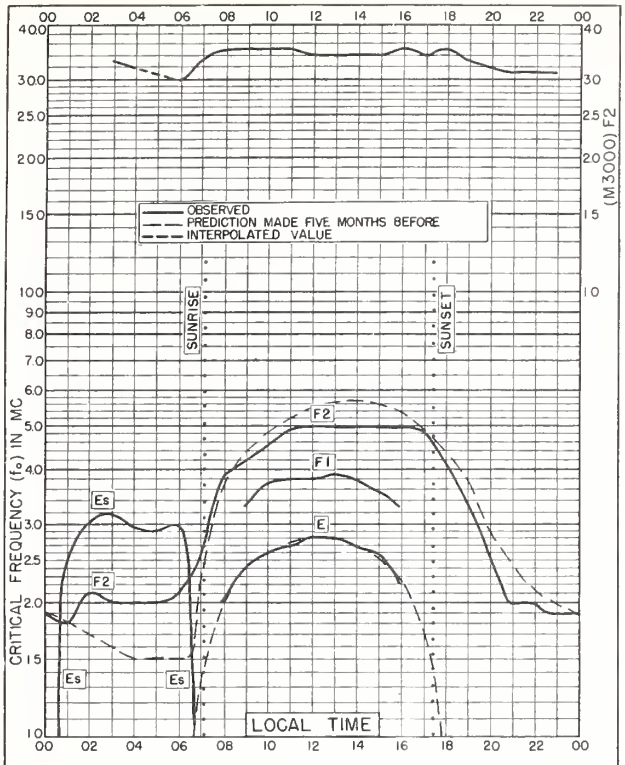


Fig. 33. OTTAWA, CANADA
45.4°N, 75.9°W FEBRUARY 1954

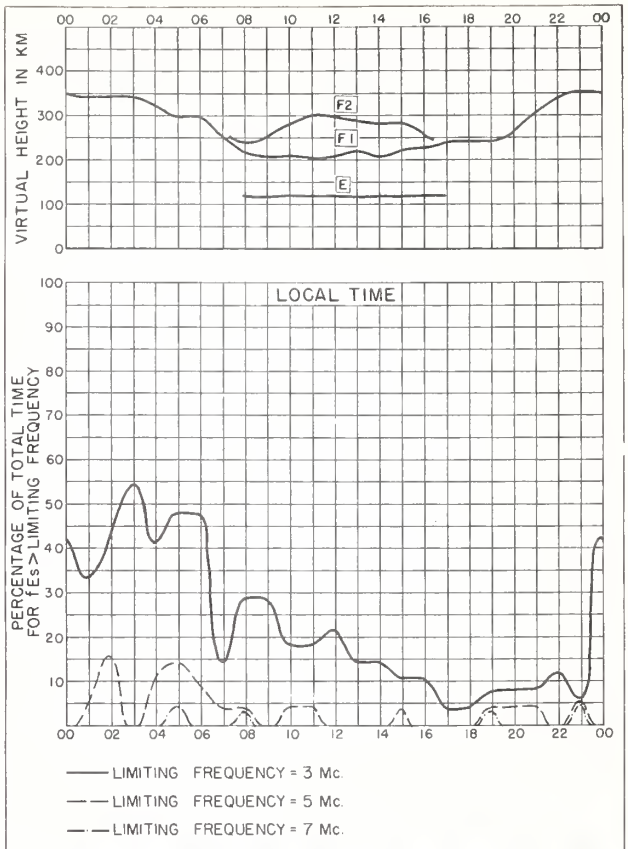


Fig. 34. OTTAWA, CANADA FEBRUARY 1954

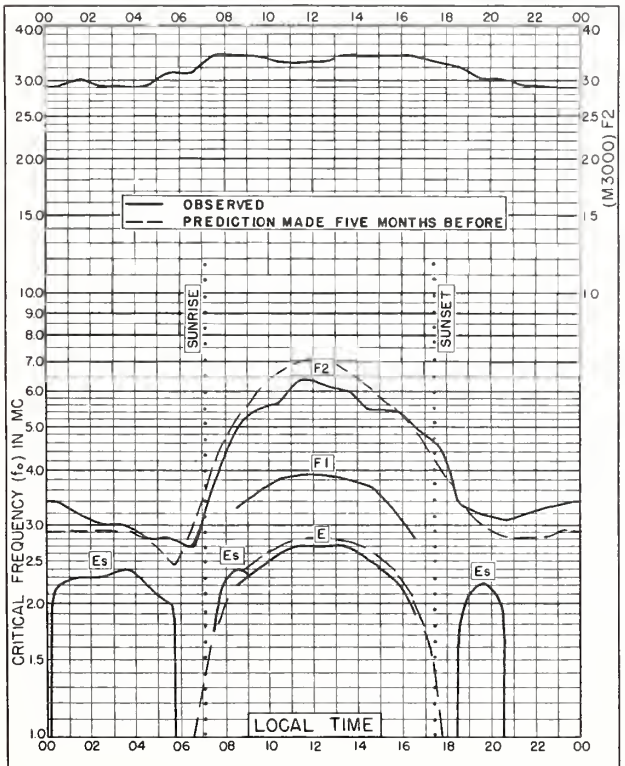


Fig. 35. WAKKANAI, JAPAN
45.4°N, 141.7°E FEBRUARY 1954

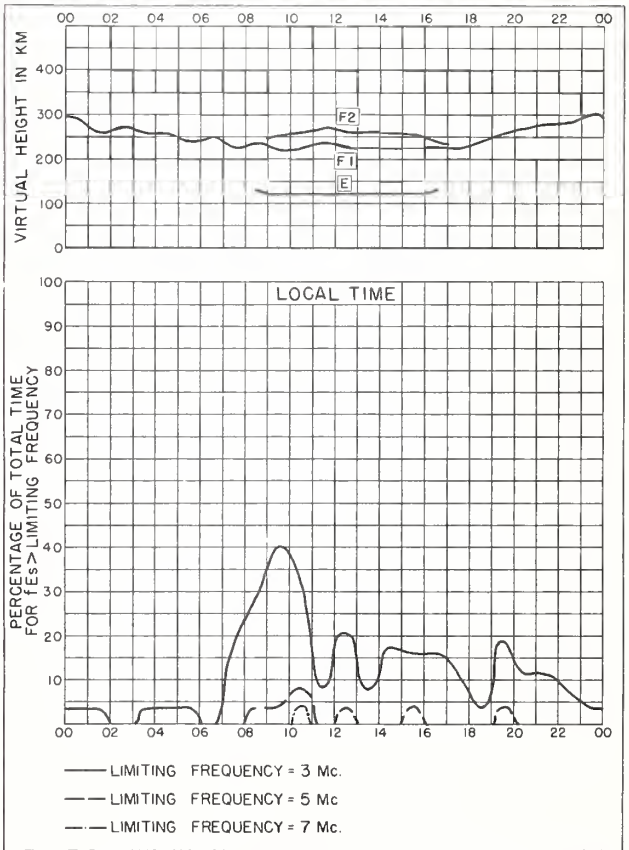


Fig. 36. WAKKANAI, JAPAN FEBRUARY 1954

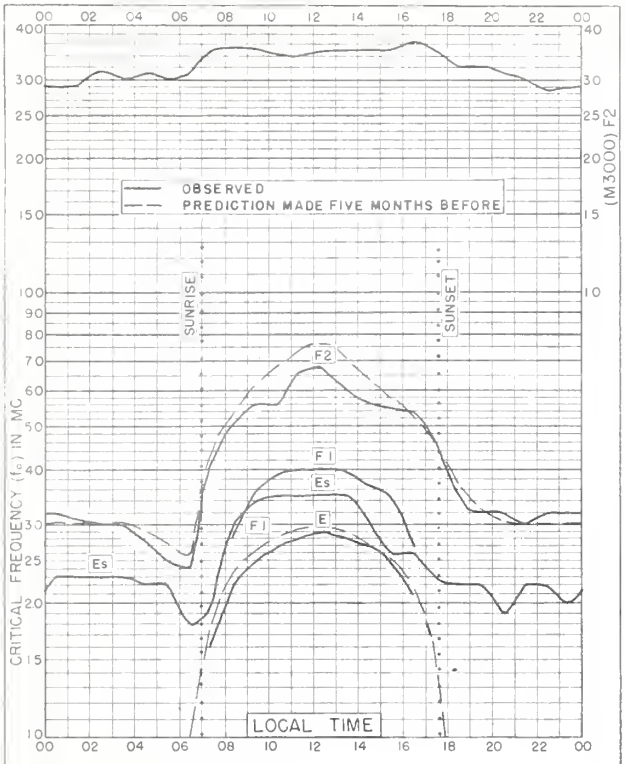


Fig. 37. AKITA, JAPAN
39.7°N, 140.1°E FEBRUARY 1954

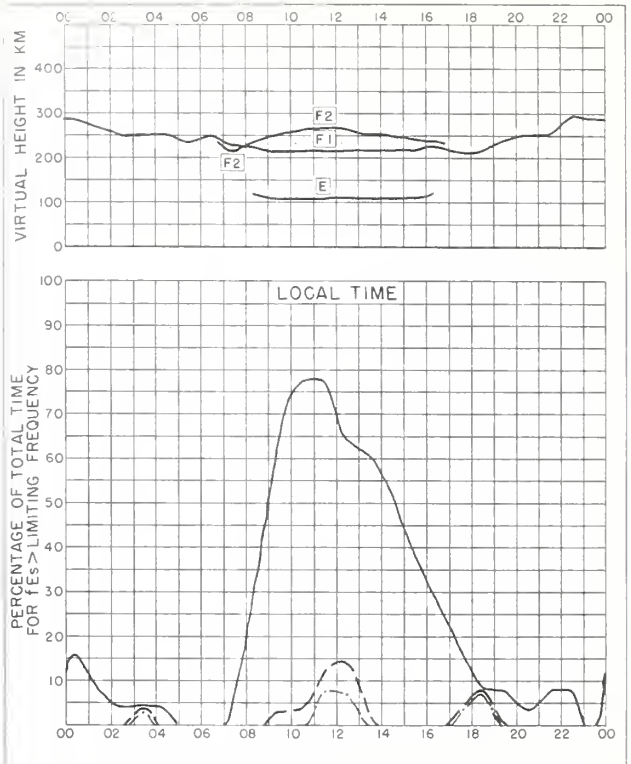


Fig. 38. AKITA, JAPAN FEBRUARY 1954

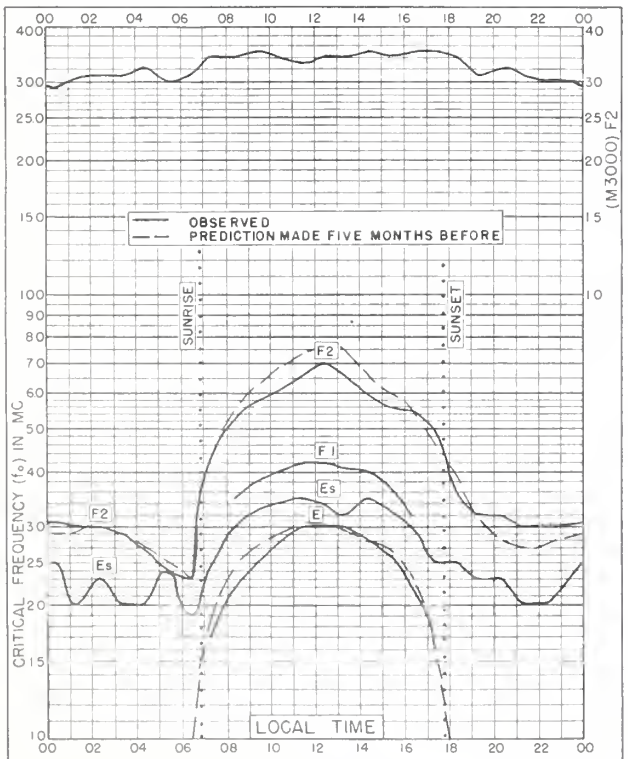


Fig. 39. TOKYO, JAPAN
35.7°N, 139.5°E FEBRUARY 1954

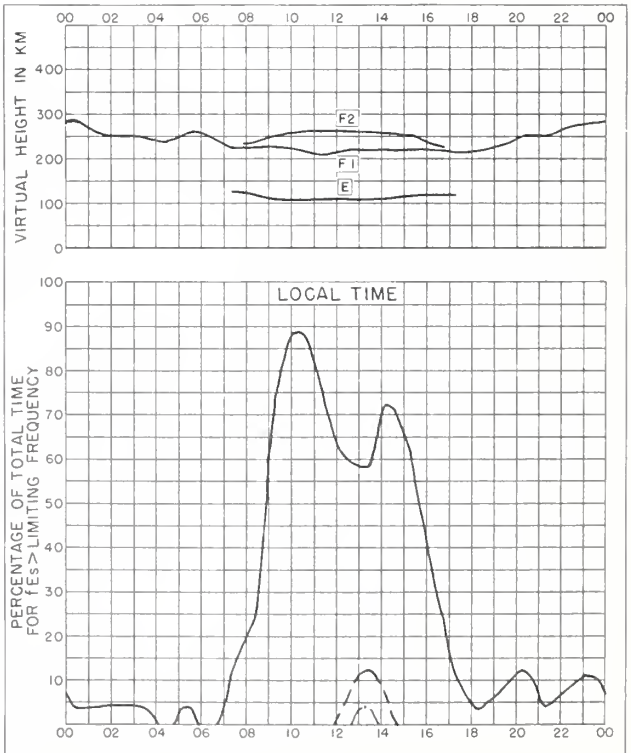


Fig. 40. TOKYO, JAPAN FEBRUARY 1954

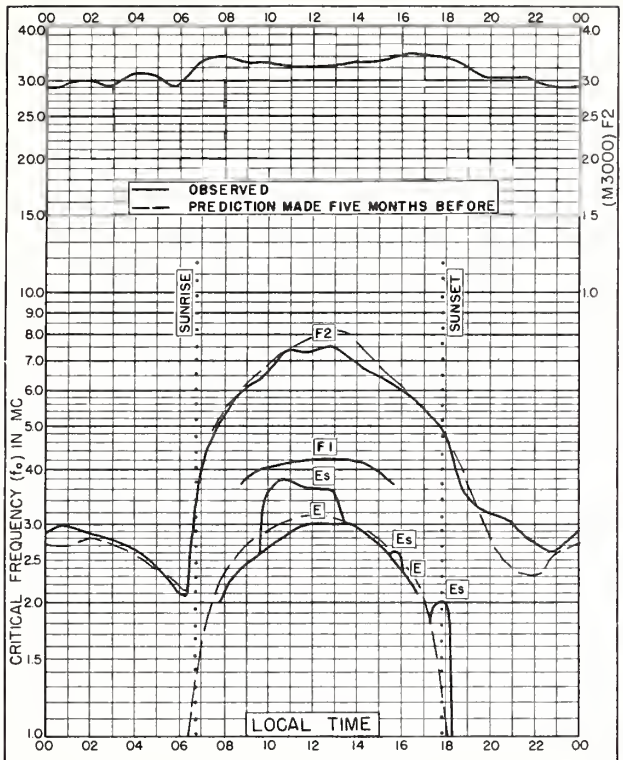


Fig. 41. YAMAGAWA, JAPAN
31.2°N, 130.6°E FEBRUARY 1954

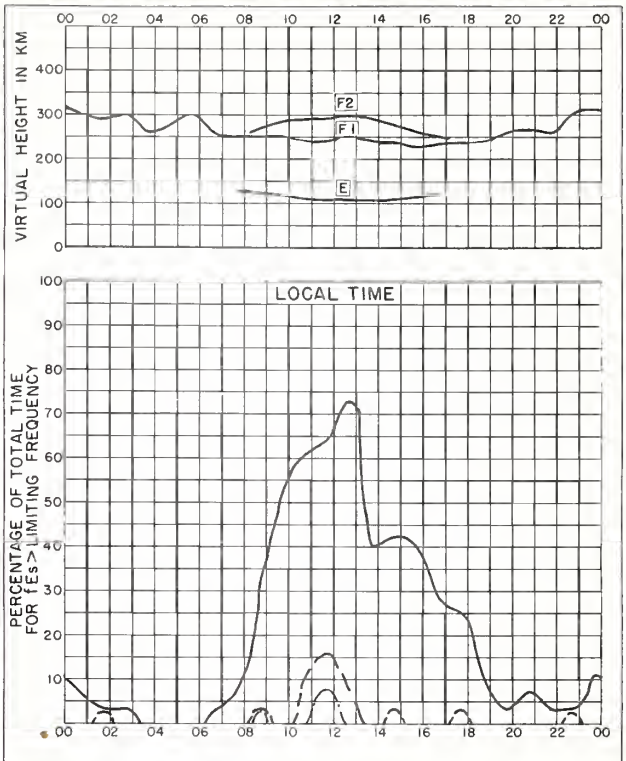


Fig. 42. YAMAGAWA, JAPAN FEBRUARY 1954

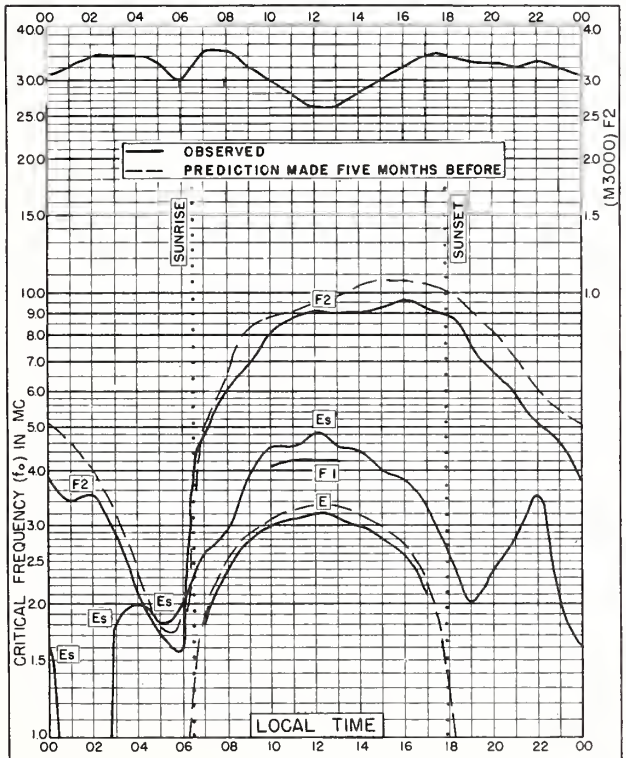


Fig. 43. BAGUIO, P.I.
16.4°N, 120.6°E FEBRUARY 1954

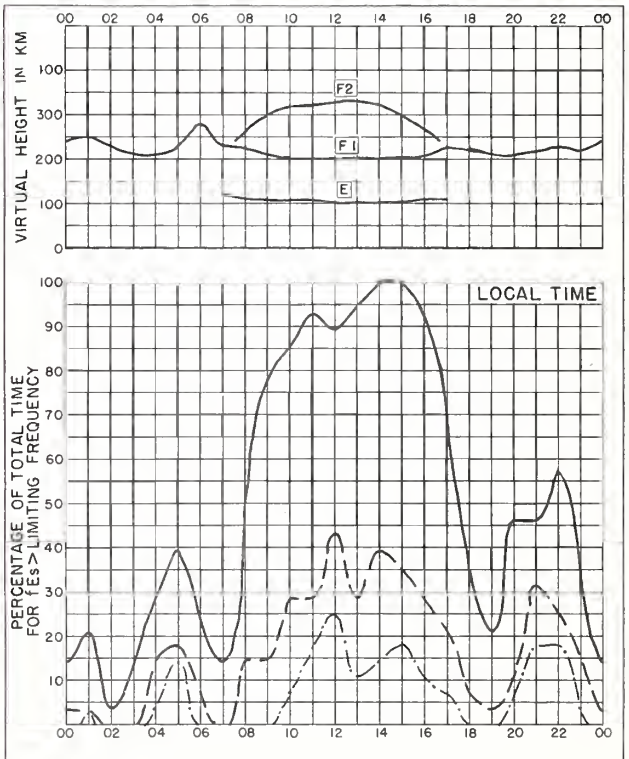


Fig. 44. BAGUIO, P. I. FEBRUARY 1954

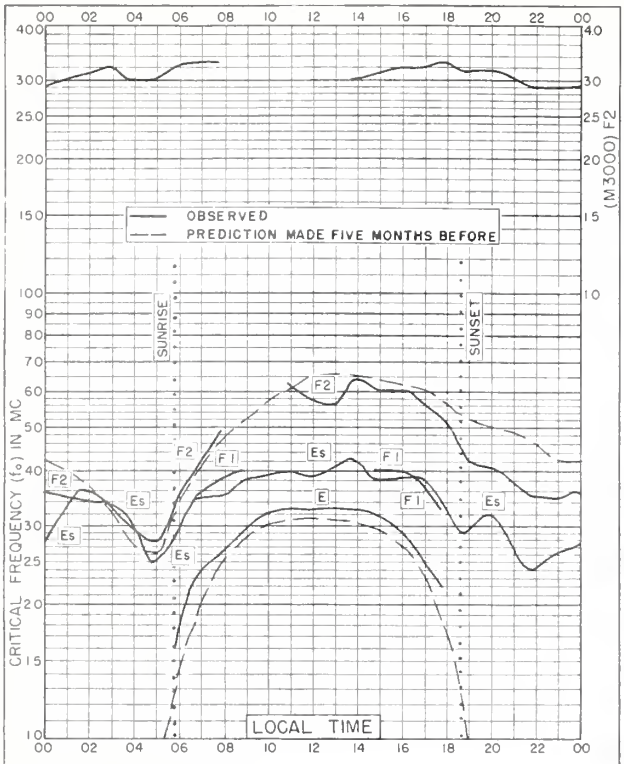
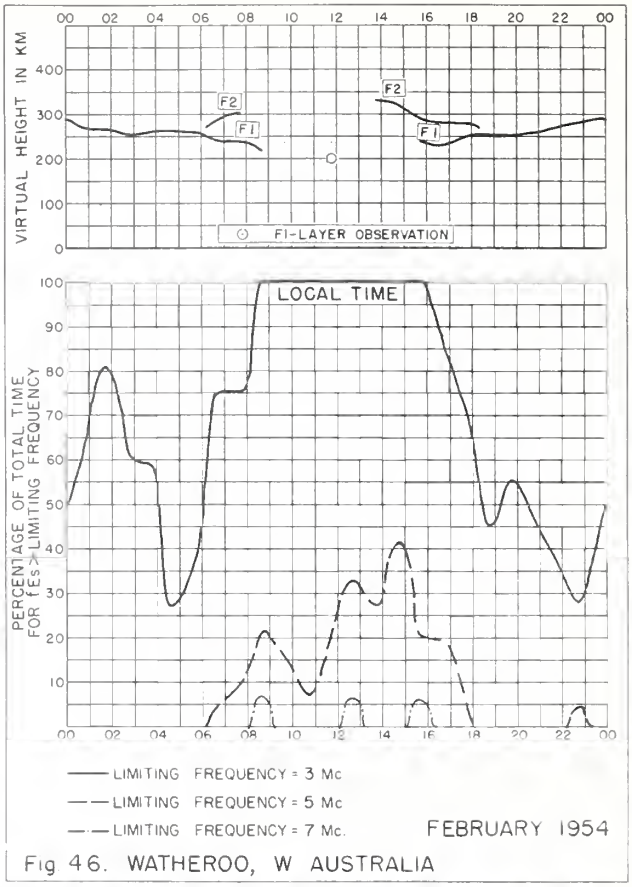


Fig 45. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E FEBRUARY 1954



FEBRUARY 1954

Fig 46. WATHEROO, W AUSTRALIA

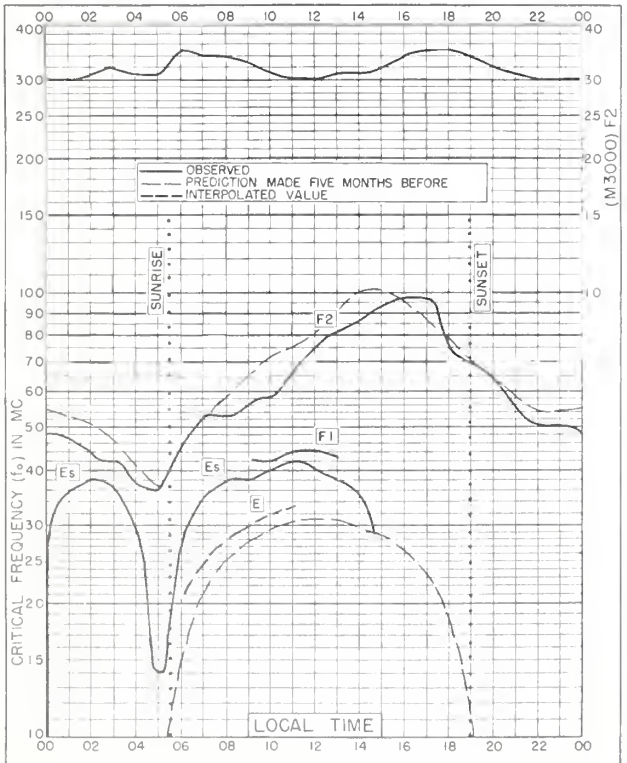
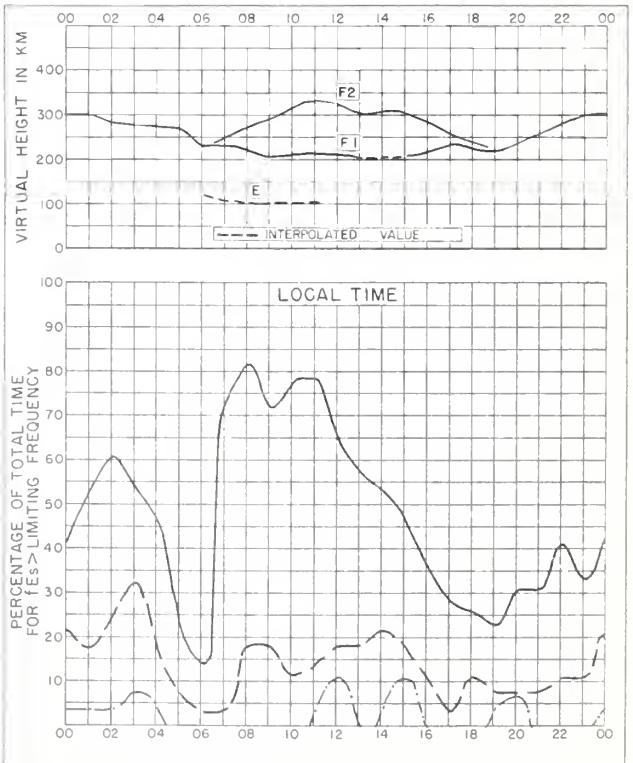


Fig. 47. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W FEBRUARY 1954



FEBRUARY 1954

Fig. 48. BUENOS AIRES, ARGENTINA

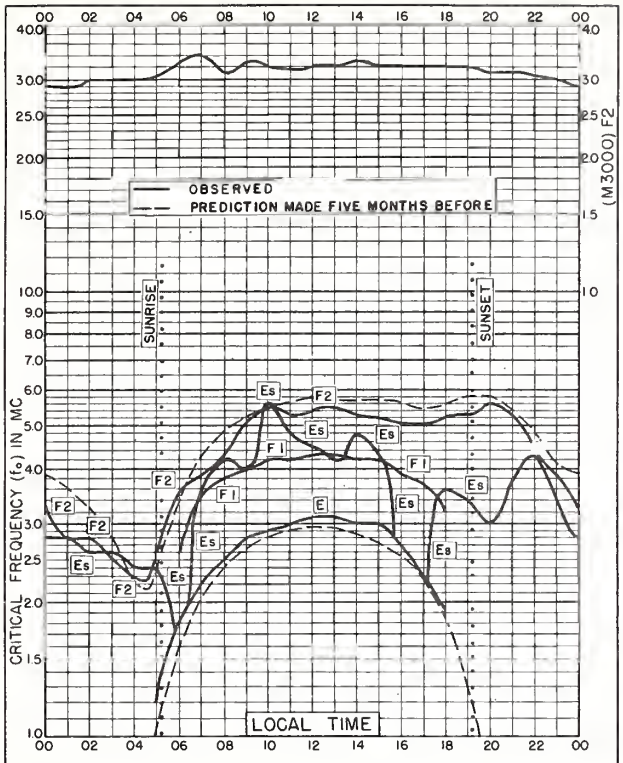


Fig. 49. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E FEBRUARY 1954

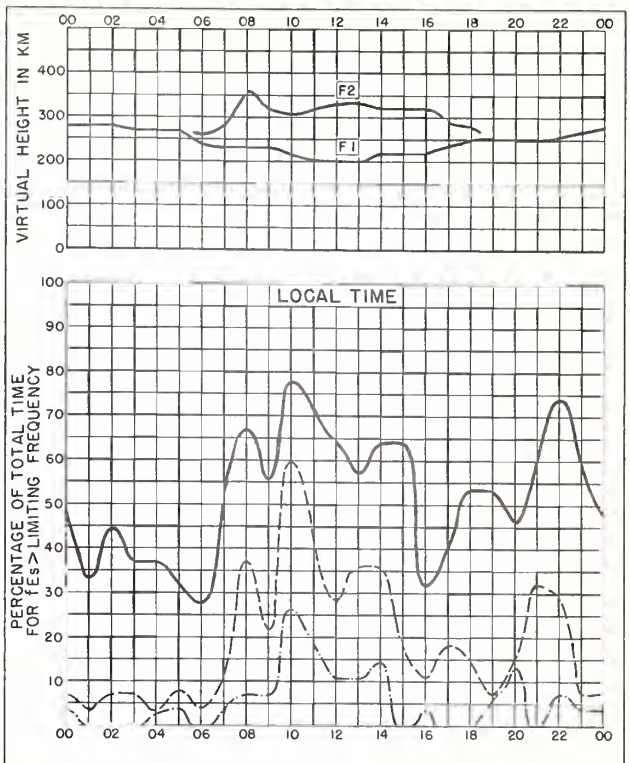


Fig. 50. CHRISTCHURCH, NEW ZEALAND FEBRUARY 1954

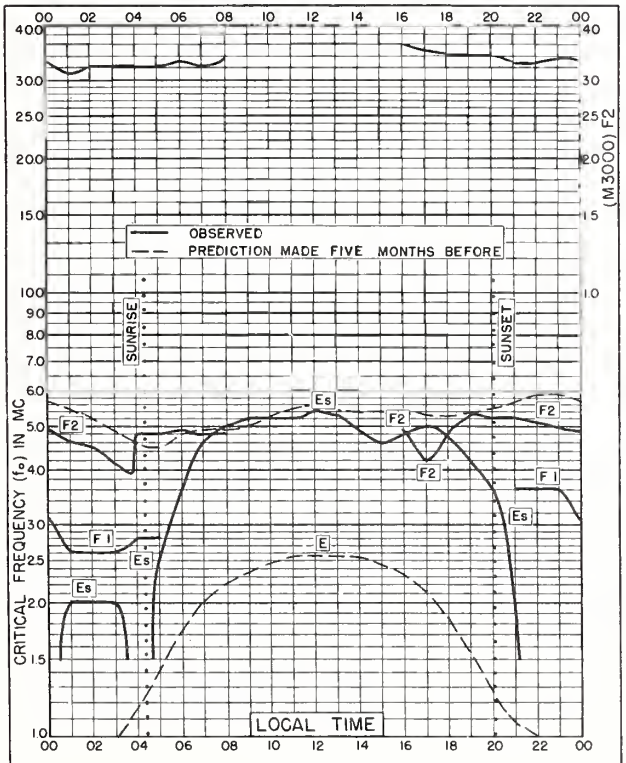


Fig. 51. DECEPCION I.
63.0°S, 60.7°W FEBRUARY 1954

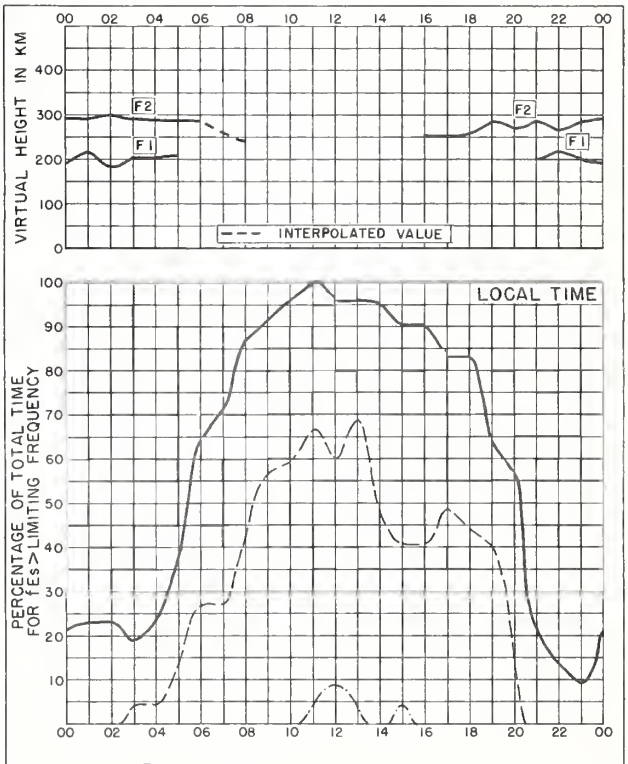


Fig. 52. DECEPCION I. FEBRUARY 1954

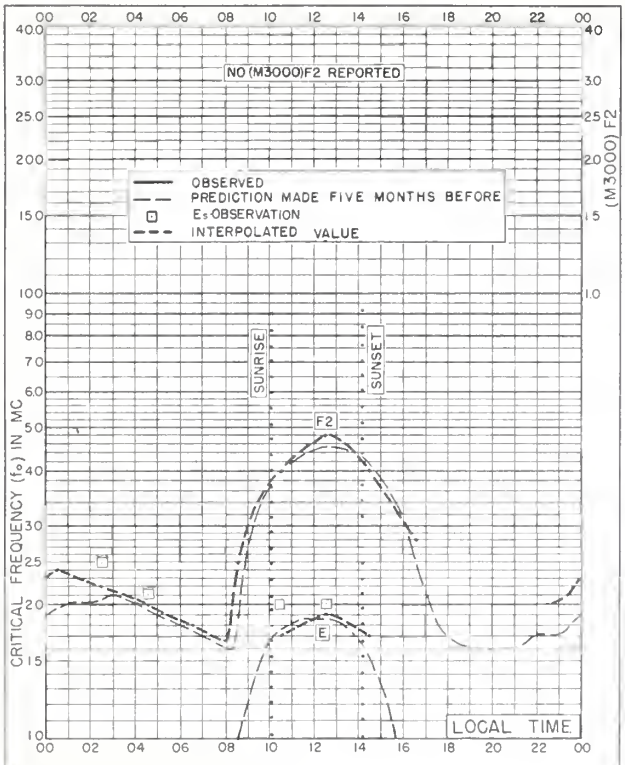


Fig. 53. LULEA, SWEDEN
65.6°N, 22.1°E JANUARY. 1954

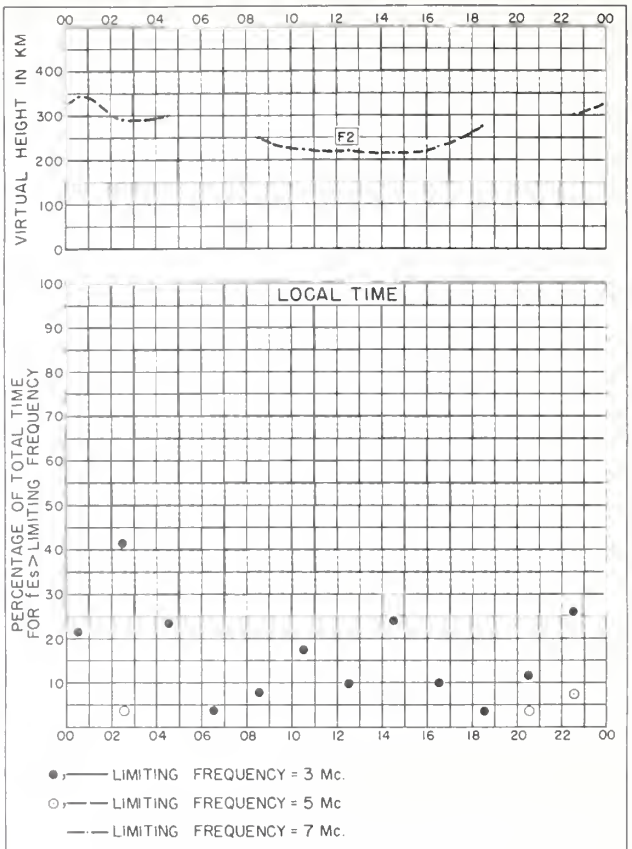


Fig. 54. LULEA, SWEDEN JANUARY 1954

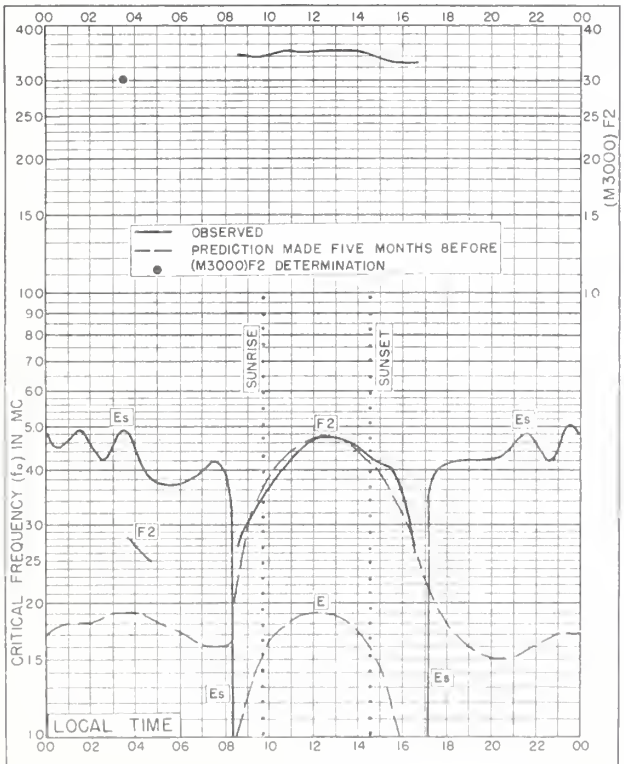


Fig 55. REYKJAVIK, ICELAND
64.1°N, 21.8°W JANUARY 1954

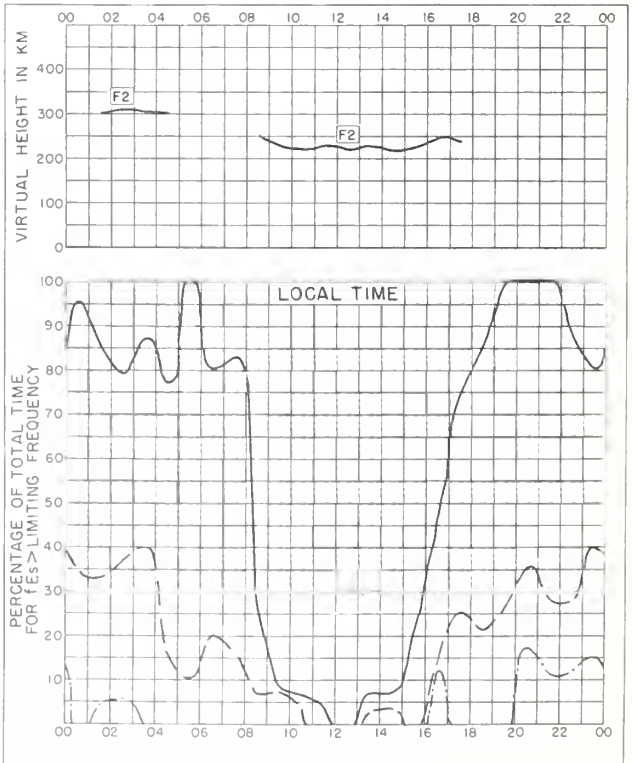


Fig. 56. REYKJAVIK, ICELAND JANUARY 1954

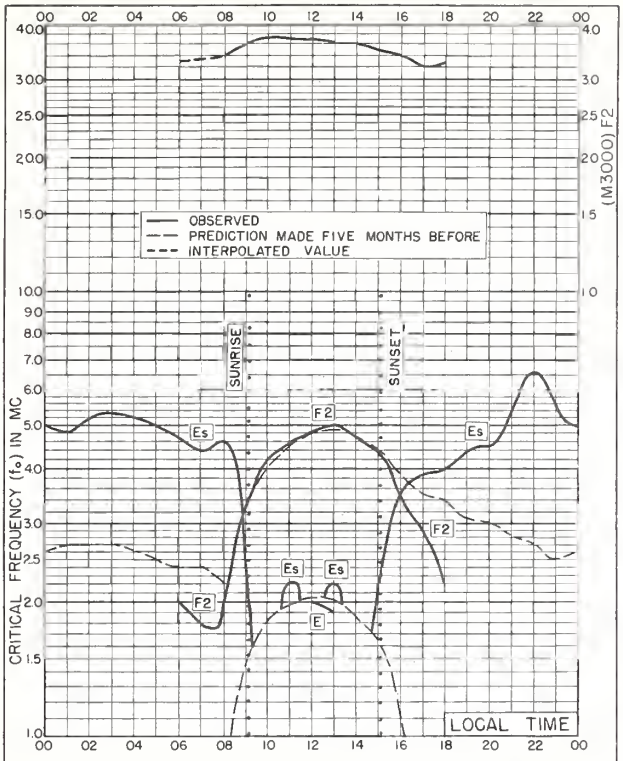


Fig 57. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W JANUARY 1954

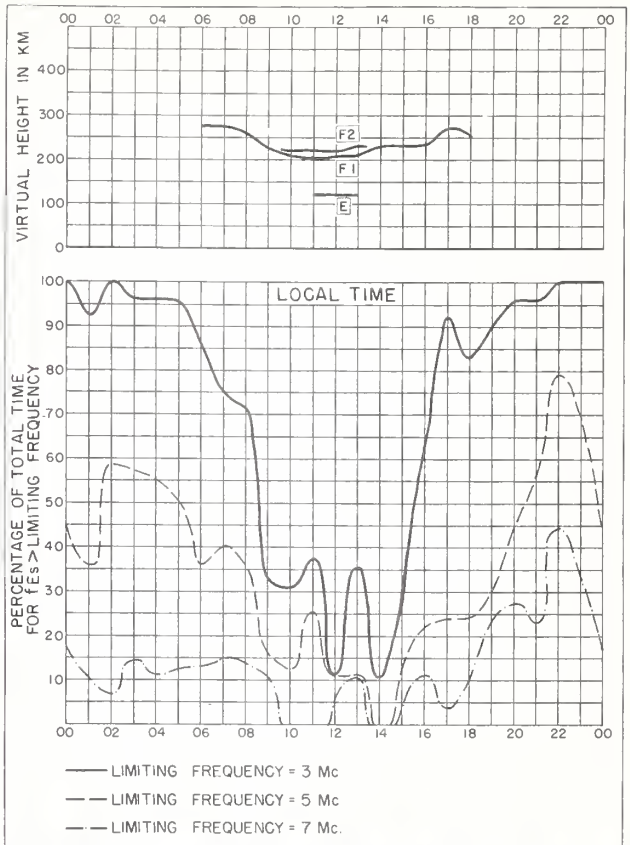


Fig. 58. NARSARSSUAK, GREENLAND JANUARY 1954

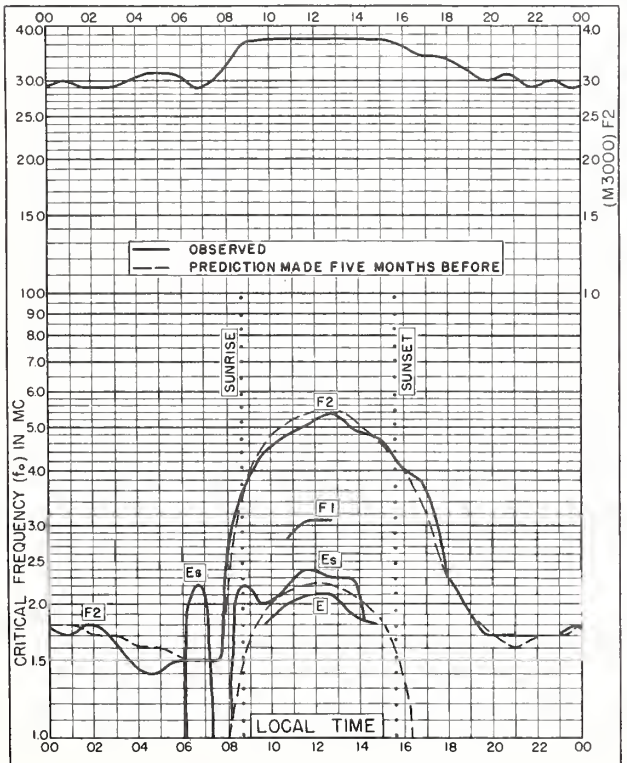


Fig. 59. INVERNESS, SCOTLAND
57.4°N, 4.2° W JANUARY 1954

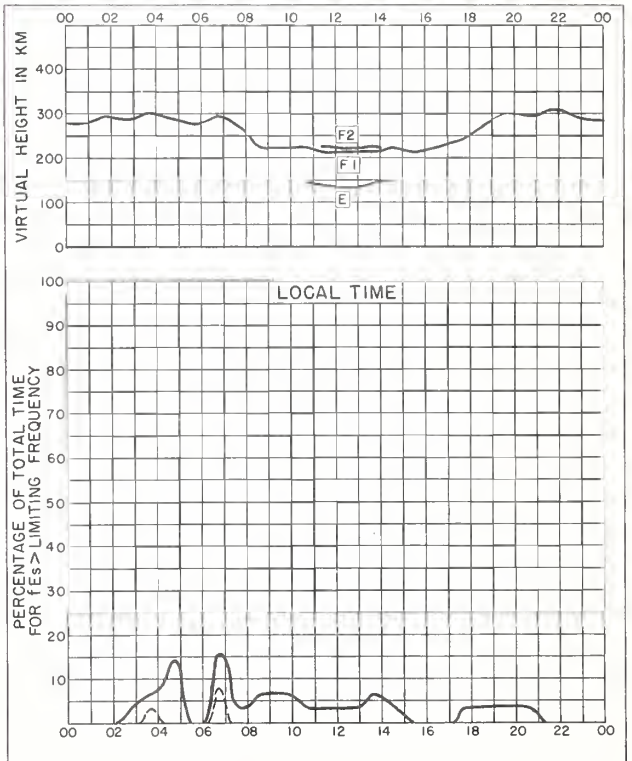


Fig. 60. INVERNESS, SCOTLAND JANUARY 1954

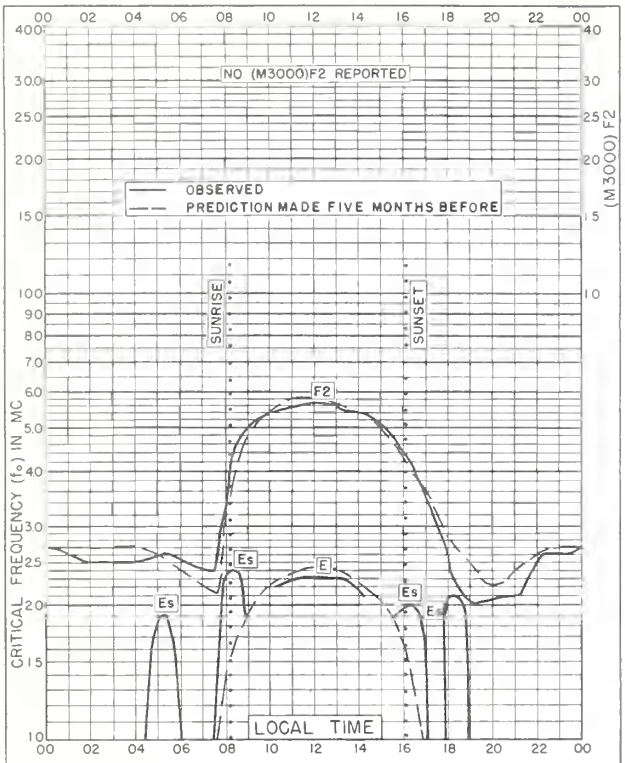


Fig. 61. ADAK, ALASKA
51.9°N, 176.6°W JANUARY 1954

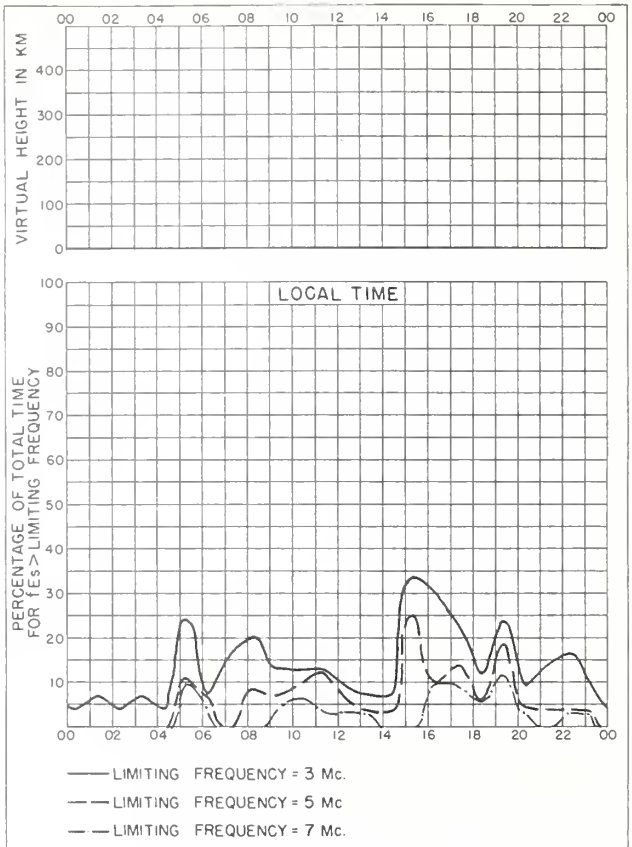


Fig. 62. ADAK, ALASKA JANUARY 1954

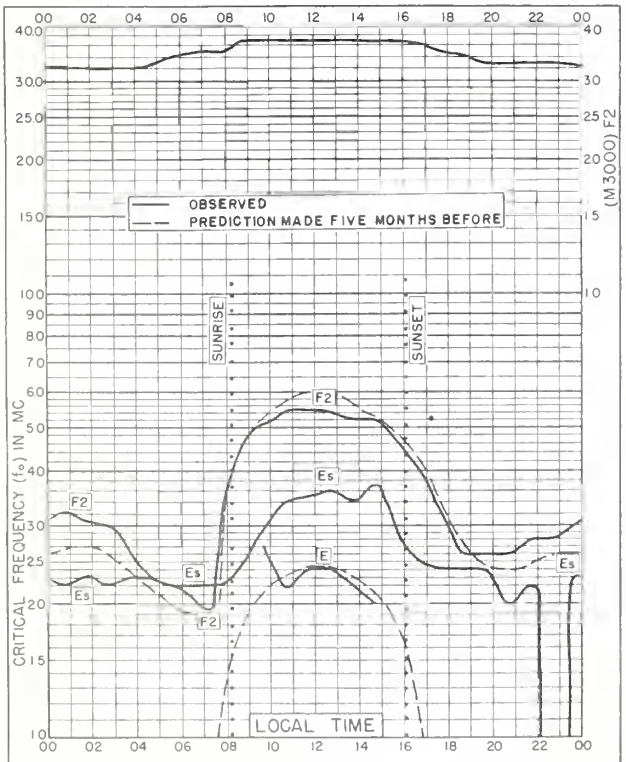
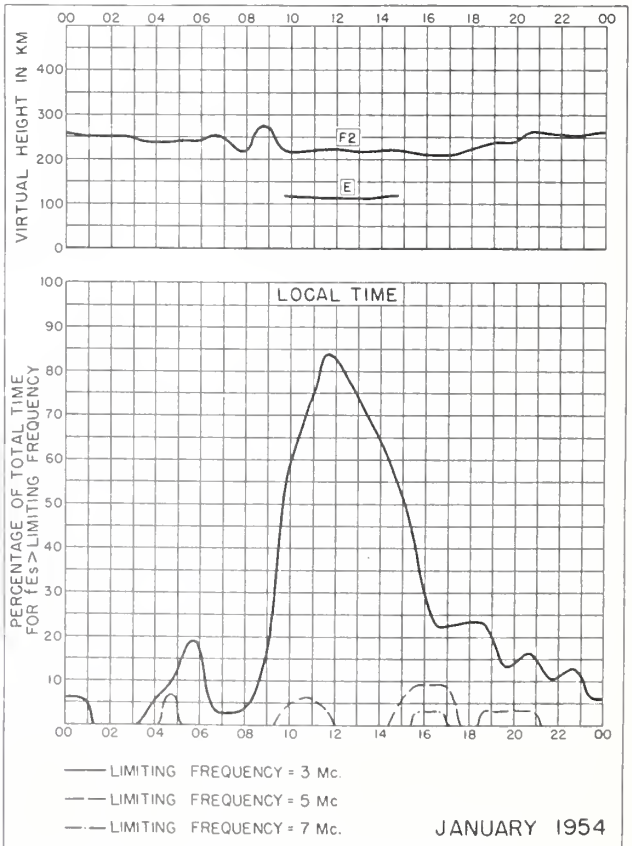


Fig 63. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JANUARY 1954



JANUARY 1954
Fig. 64. LINDAU/HARZ, GERMANY

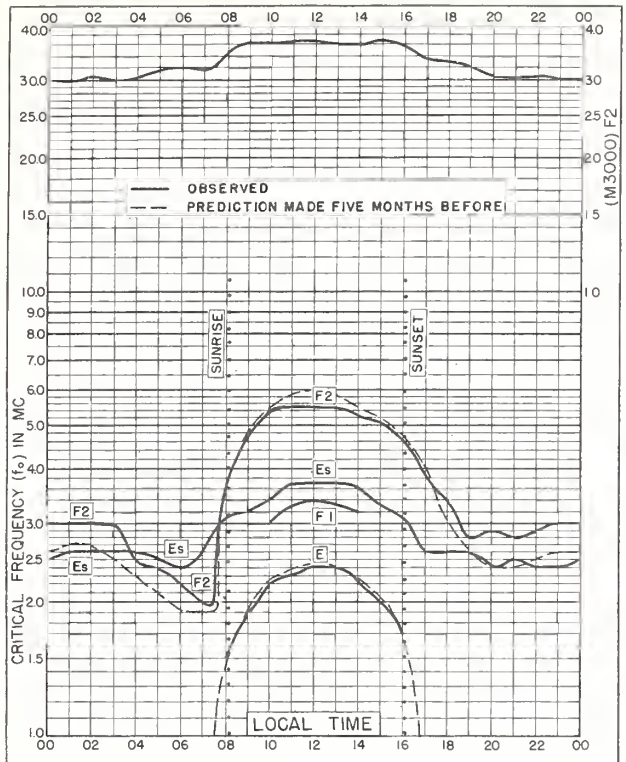


Fig. 65. SLOUGH, ENGLAND
51.5°N, 0.6°W JANUARY 1954

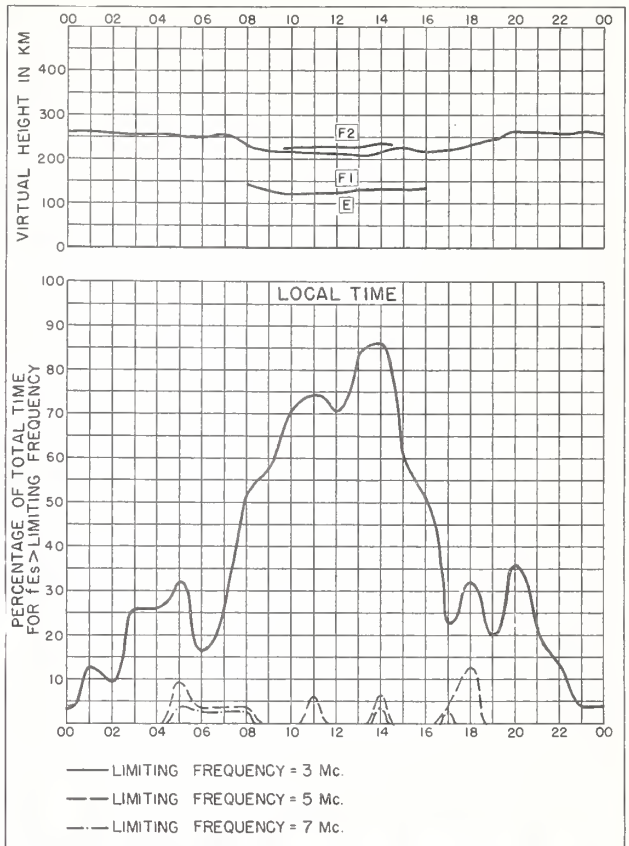


Fig. 66. SLOUGH, ENGLAND JANUARY 1954

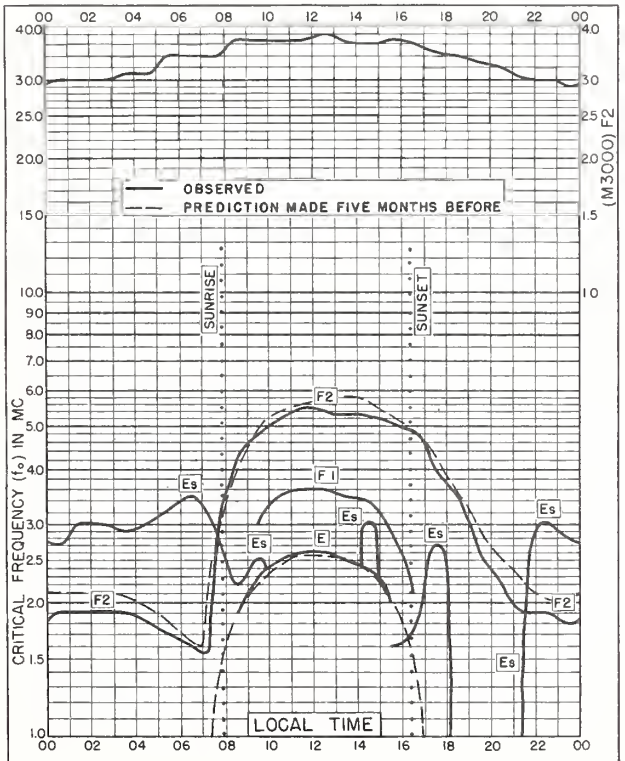


Fig. 67. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W JANUARY 1954

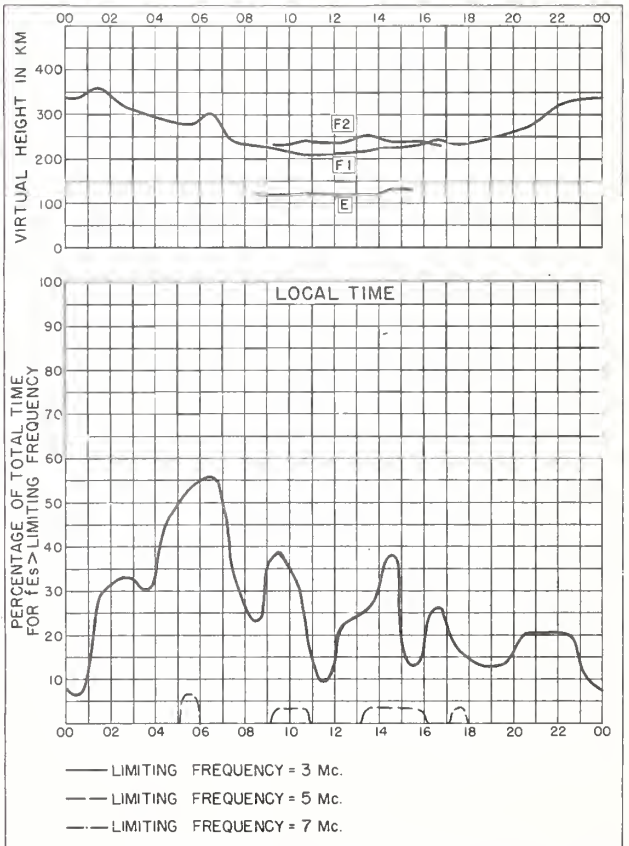


Fig. 68. ST. JOHN'S, NEWFOUNDLAND JANUARY 1954

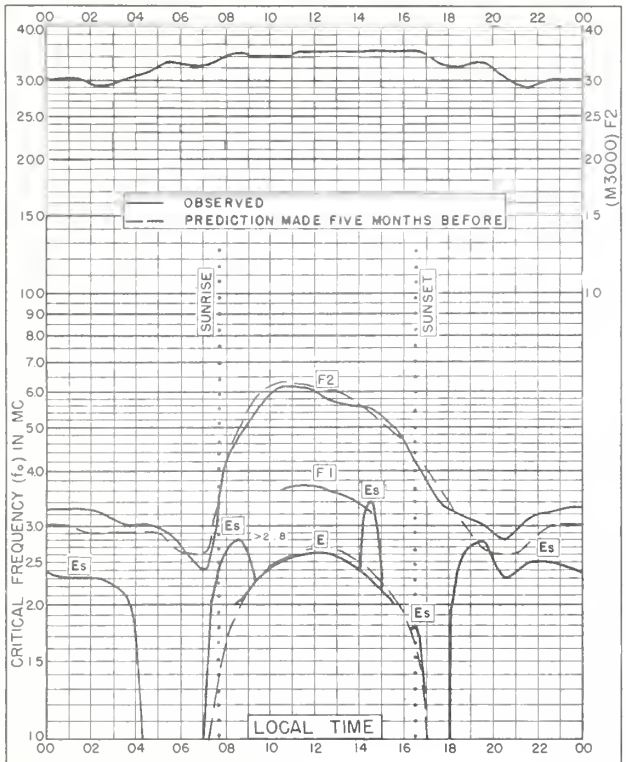


Fig. 69. WAKKANAI, JAPAN
45.4°N, 141.7°E JANUARY 1954

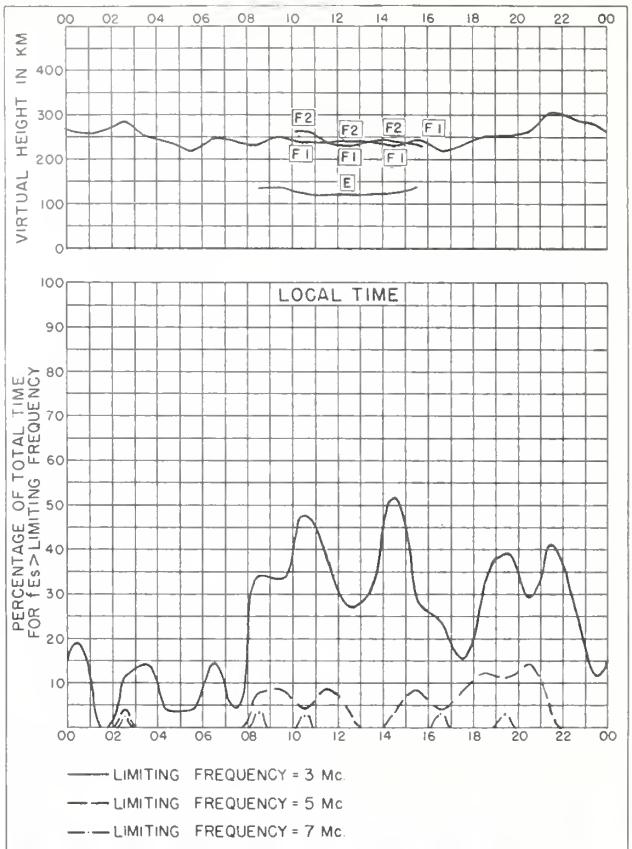


Fig 70. WAKKANAI, JAPAN JANUARY 1954

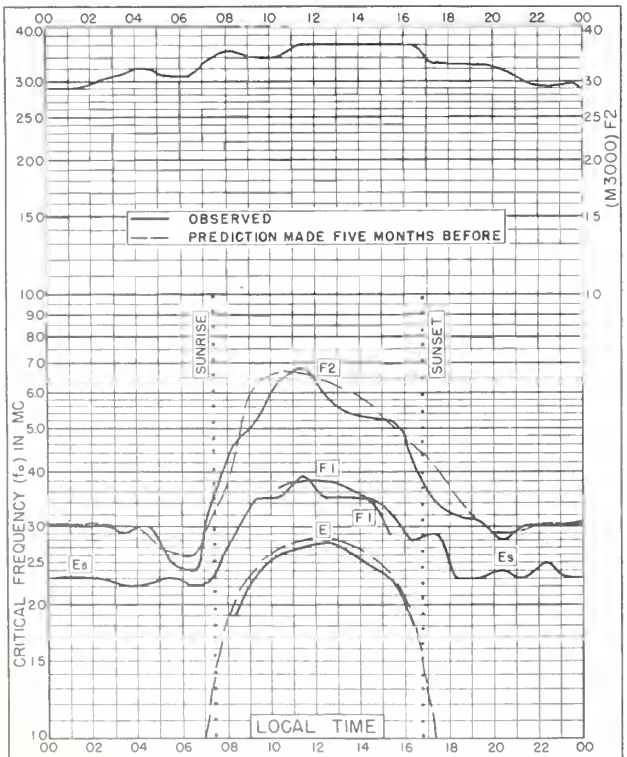


Fig. 71. AKITA, JAPAN
39.7°N, 140.1°E JANUARY 1954

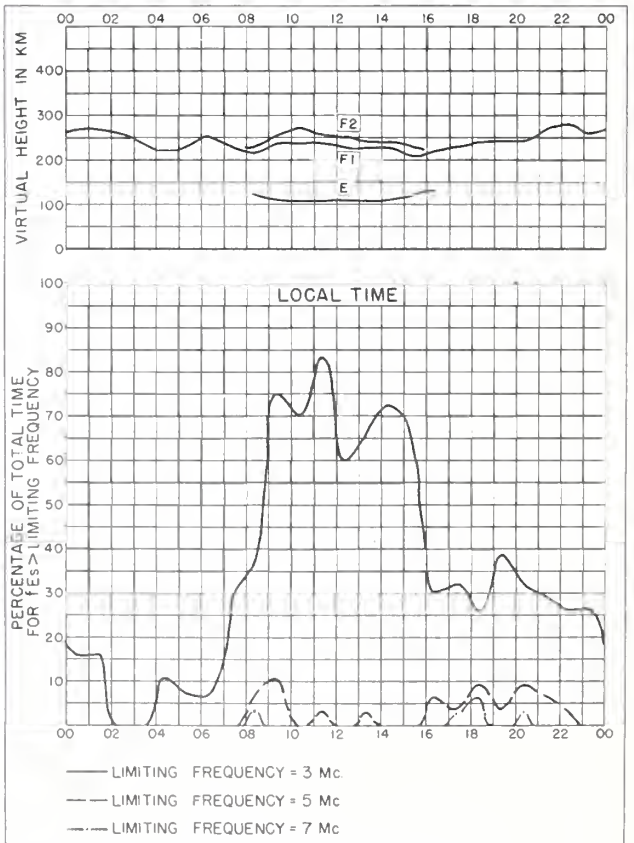


Fig. 72. AKITA, JAPAN JANUARY 1954

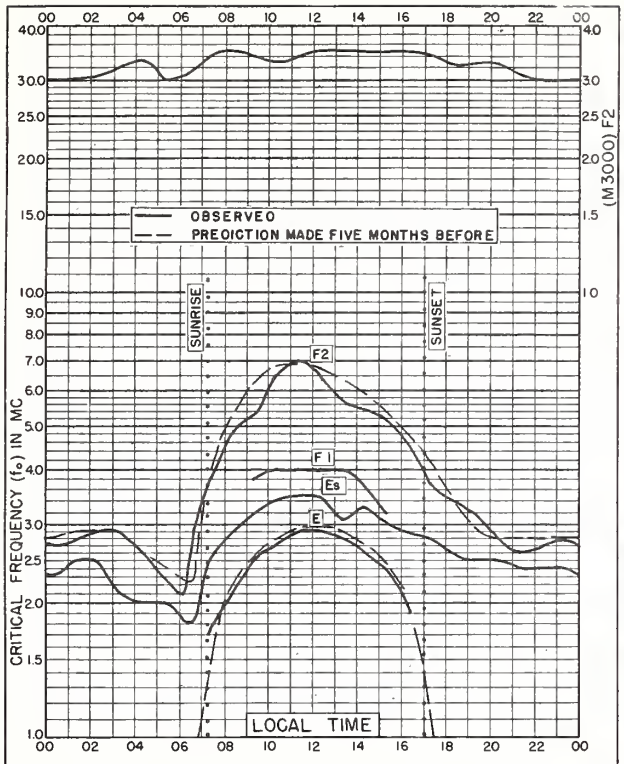


Fig. 73. TOKYO, JAPAN
35.7°N, 139.5°E JANUARY 1954

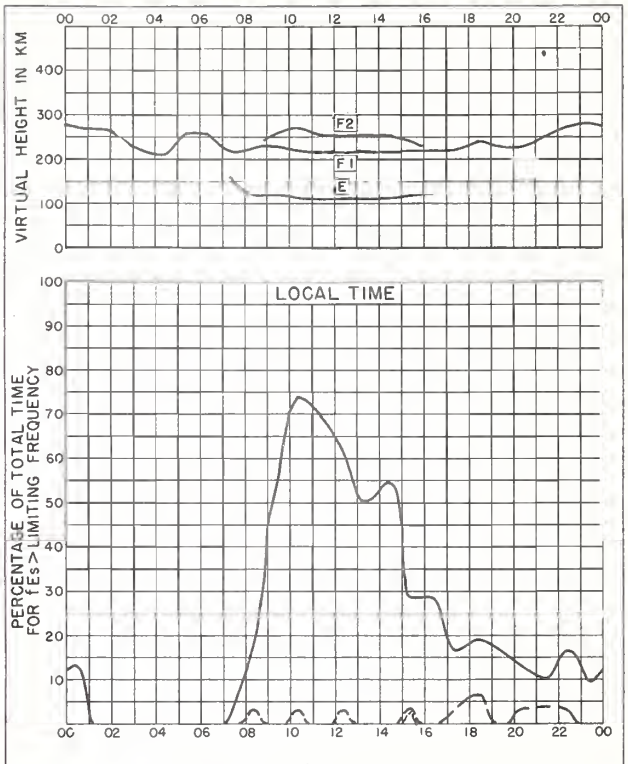


Fig. 74. TOKYO, JAPAN JANUARY 1954

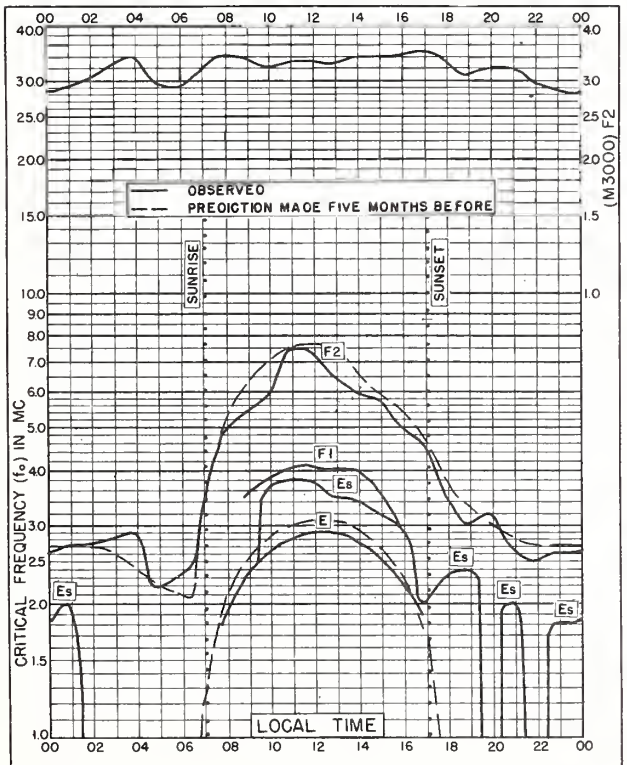


Fig. 75. YAMAGAWA, JAPAN
31.2°N, 130.6°E JANUARY 1954

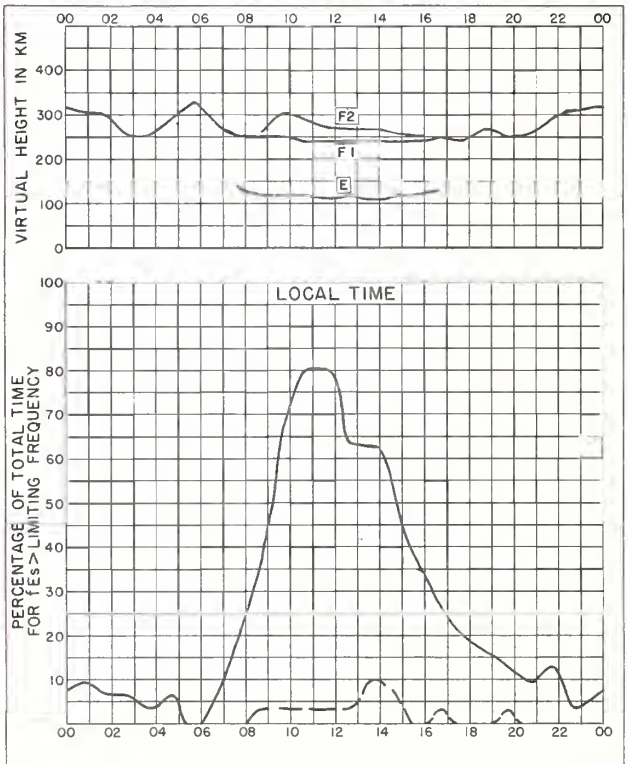


Fig. 76. YAMAGAWA, JAPAN JANUARY 1954

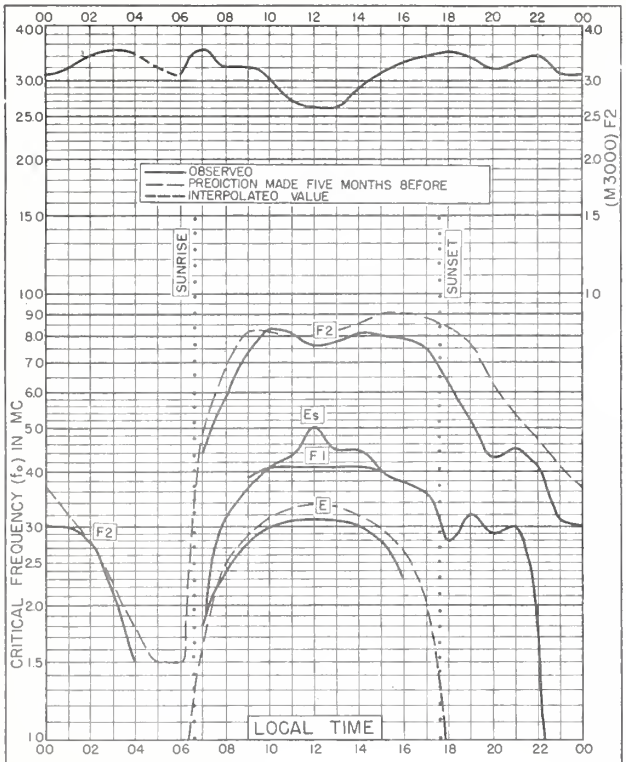


Fig 77. BAGUIO, P. I.
16.4°N, 120.6°E JANUARY 1954

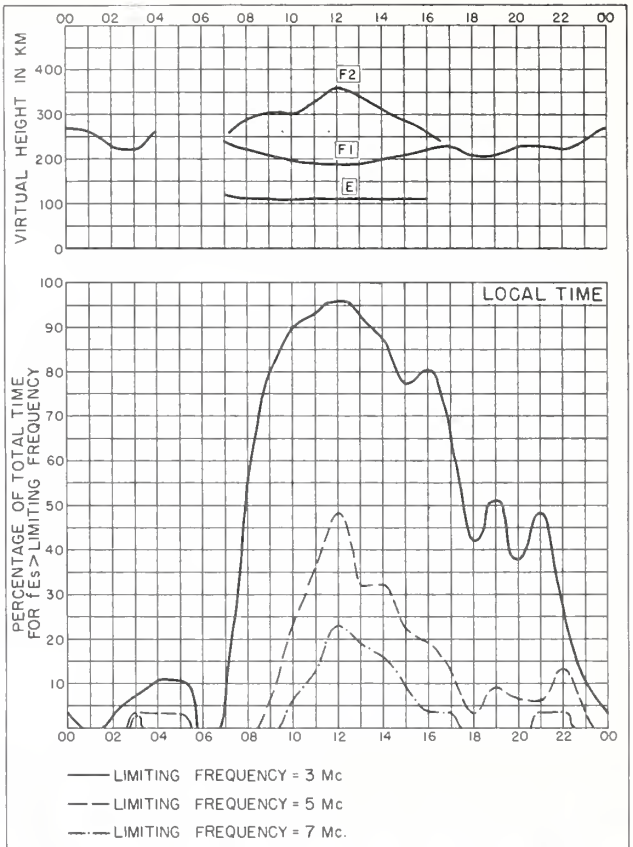


Fig. 78. BAGUIO, P. I. JANUARY 1954

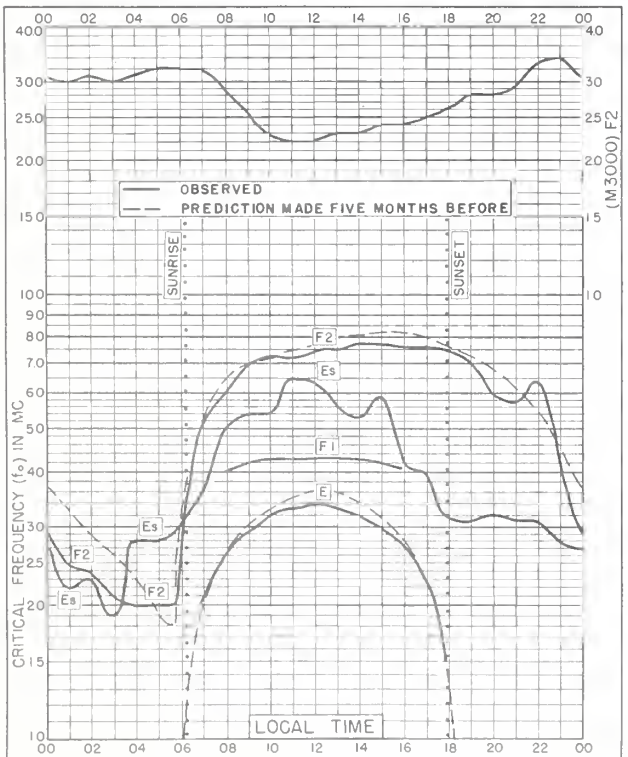
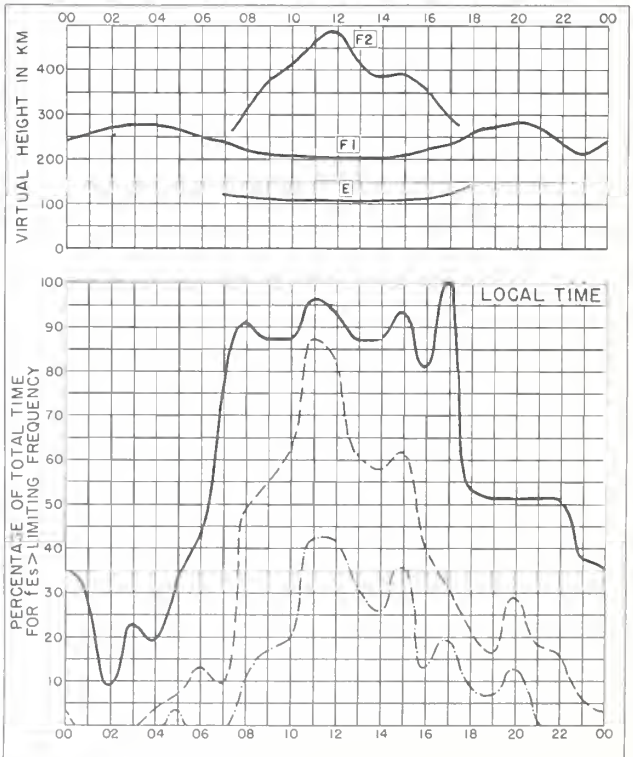


Fig. 79. SINGAPORE, BRITISH MALAYA
1. 3°N, 103.8°E JANUARY 1954



JANUARY 1954
Fig. 80. SINGAPORE, BRITISH MALAYA

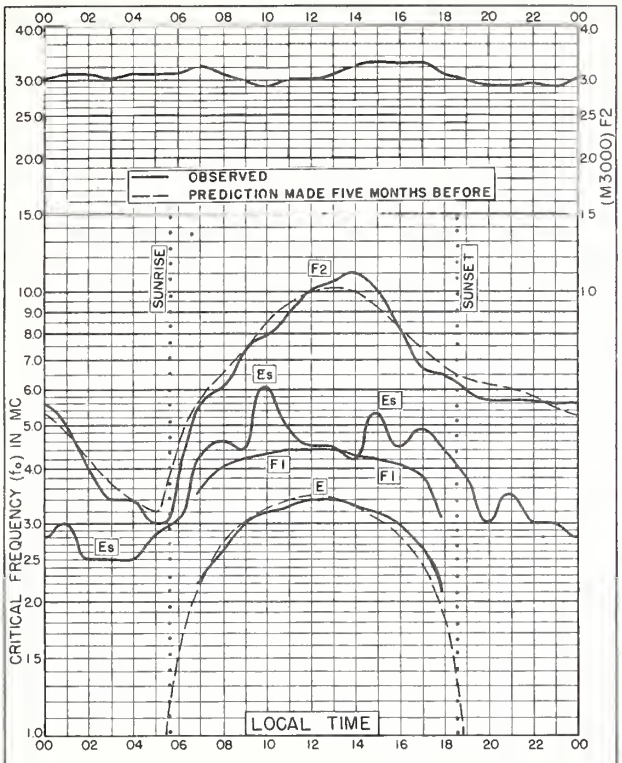


Fig. 81. RAROTONGA I.
21.3°S, 159.8°W JANUARY 1954

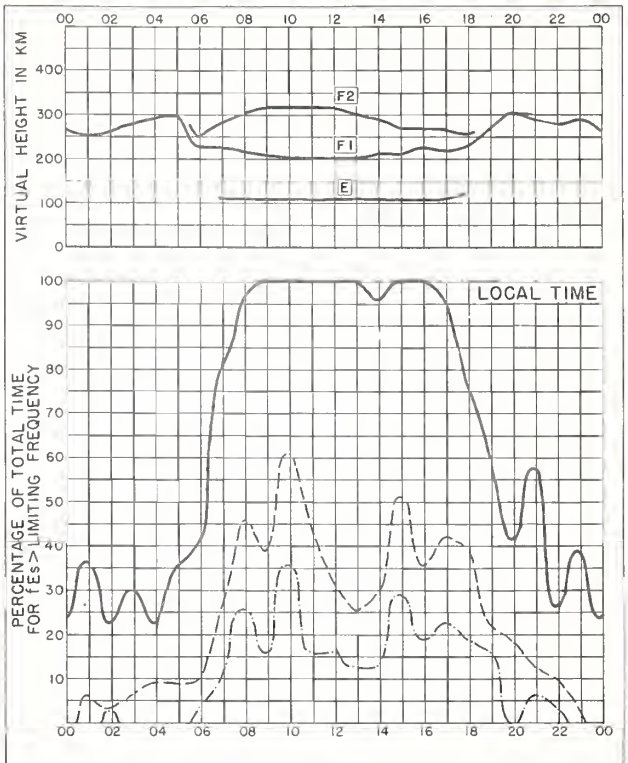


Fig. 82. RAROTONGA I. JANUARY 1954

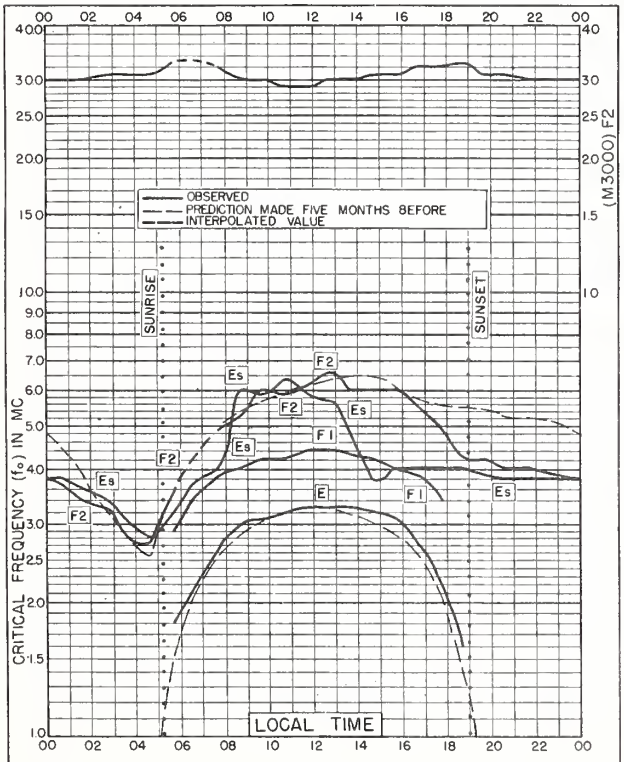


Fig. 83. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JANUARY 1954

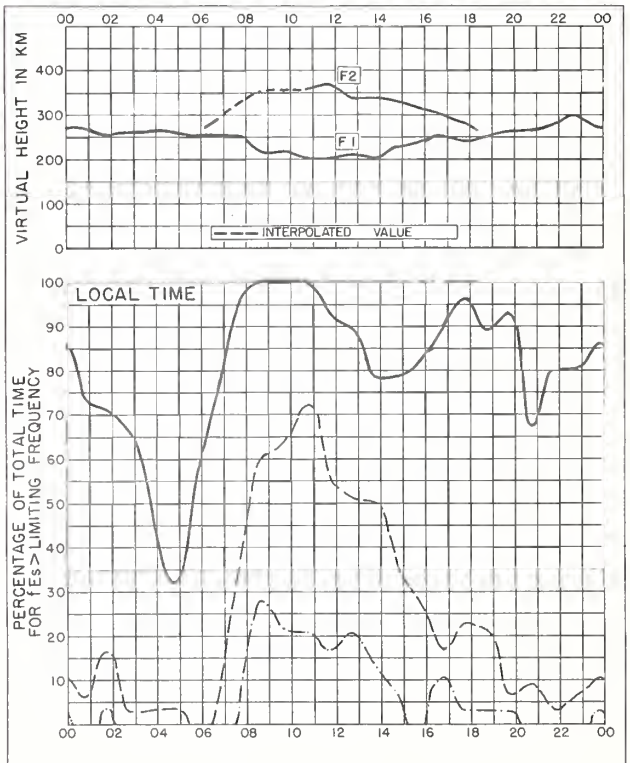


Fig. 84. WATHEROO, W. AUSTRALIA JANUARY 1954

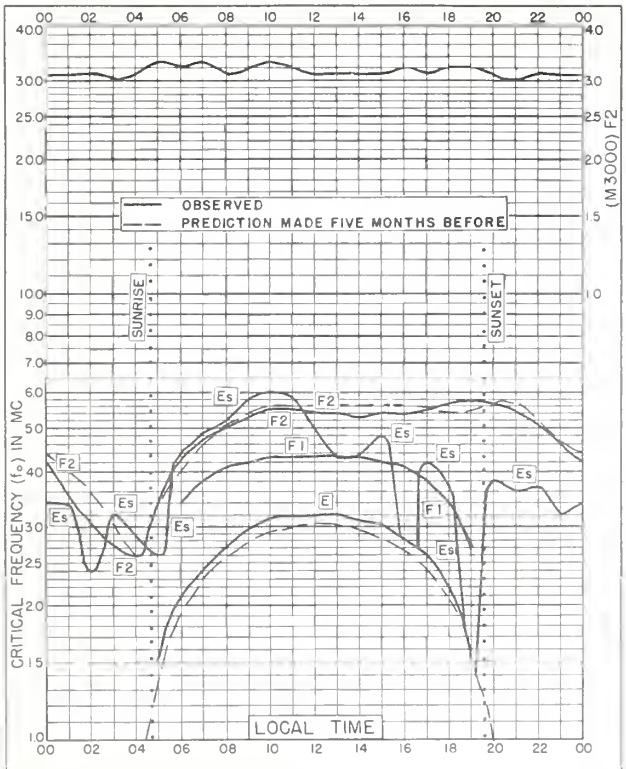


Fig. 85. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E JANUARY 1954

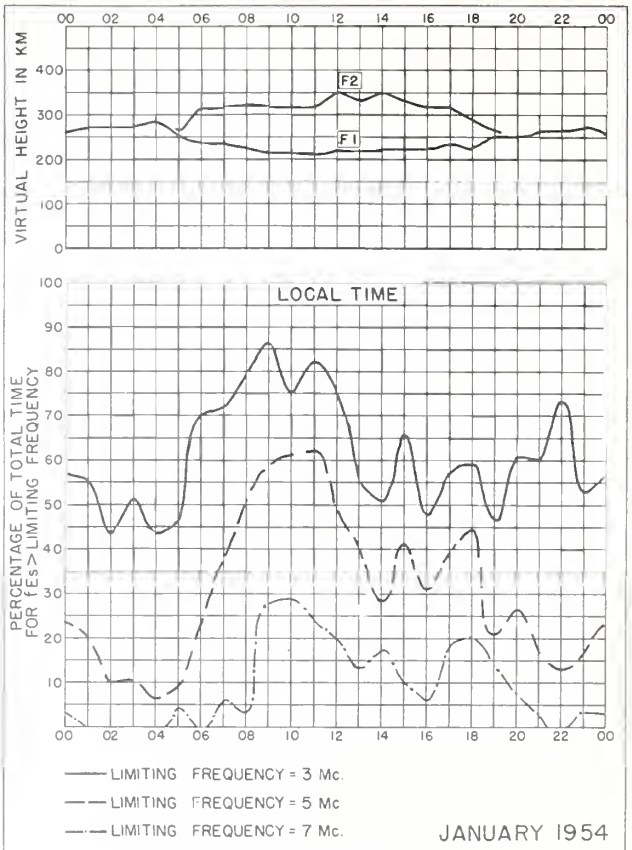


Fig. 86. CHRISTCHURCH, NEW ZEALAND JANUARY 1954

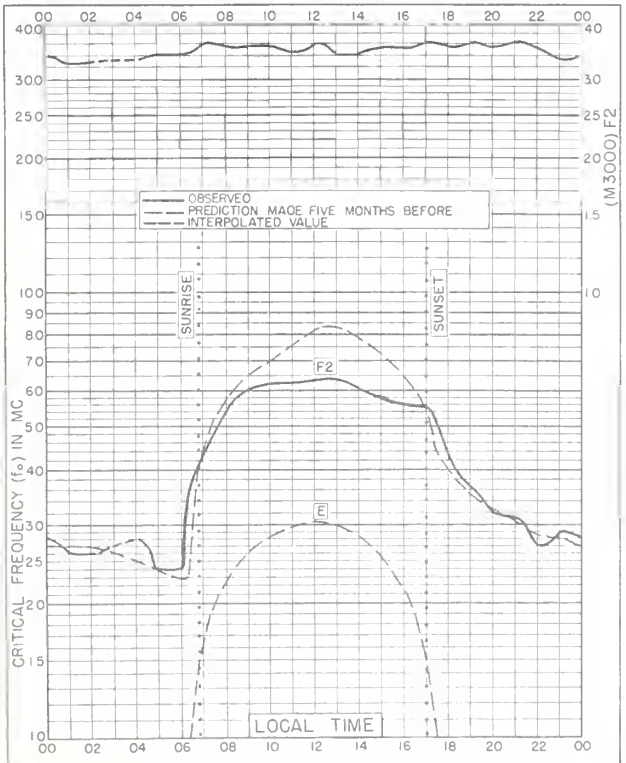


Fig. 87. DELHI, INDIA
28.6°N, 77.1°E DECEMBER 1953

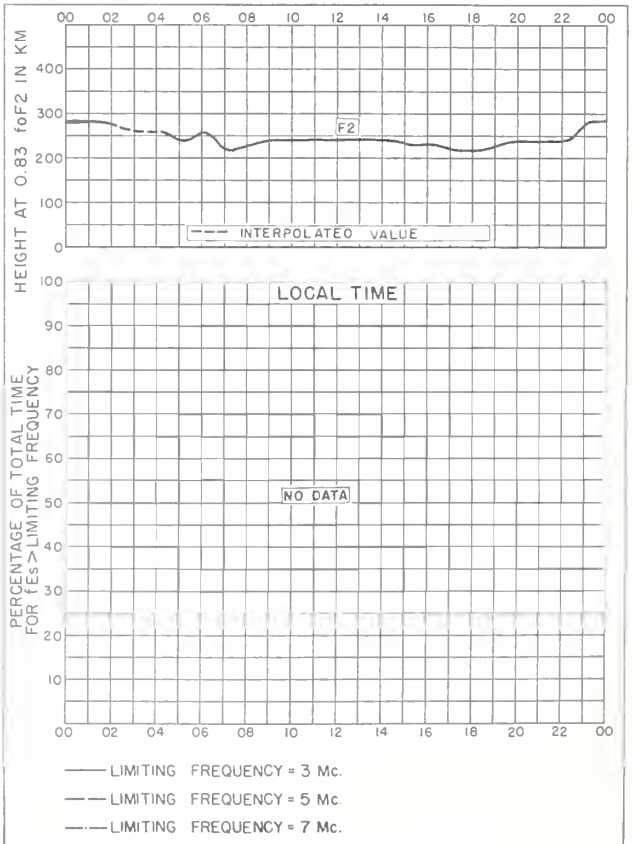


Fig. 88. DELHI, INDIA DECEMBER 1953

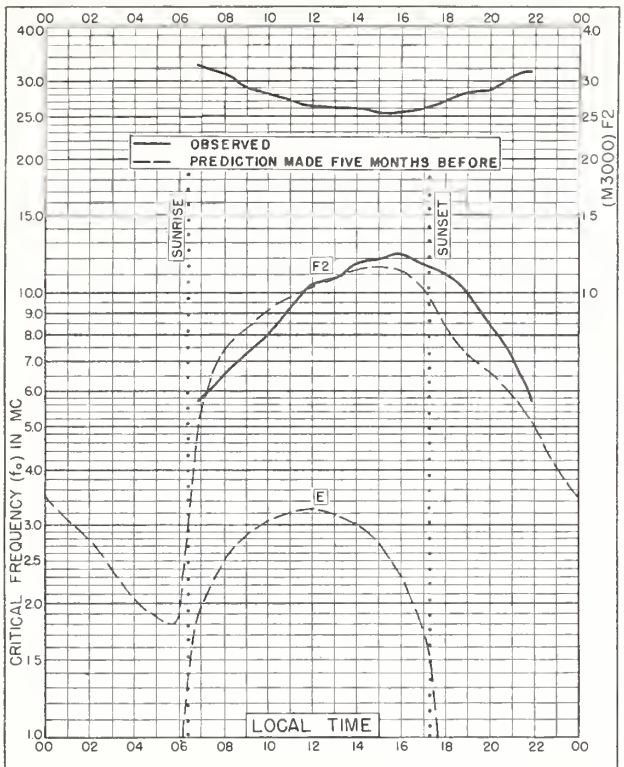


Fig. 89. BOMBAY, INDIA
19.0°N, 73.0°E DECEMBER 1953

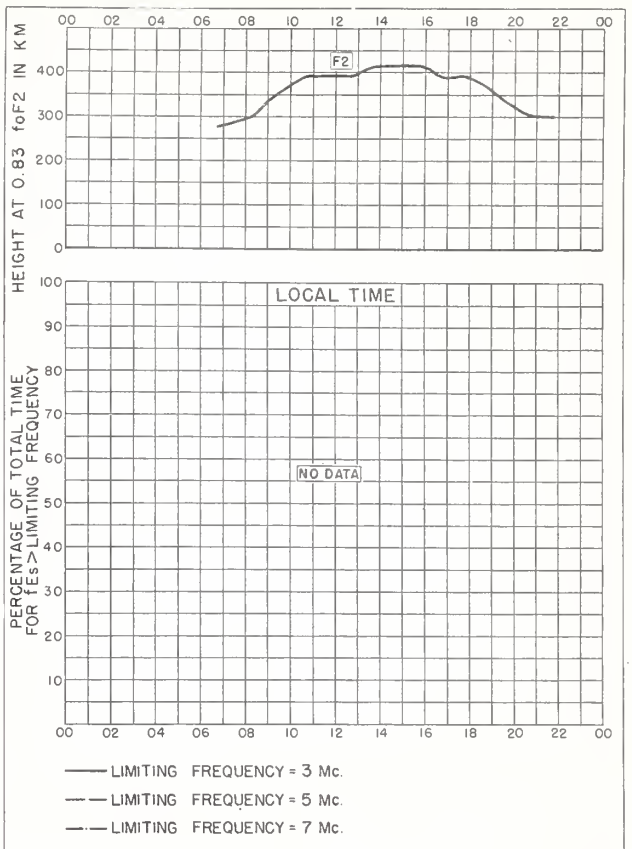


Fig. 90. BOMBAY, INDIA DECEMBER 1953

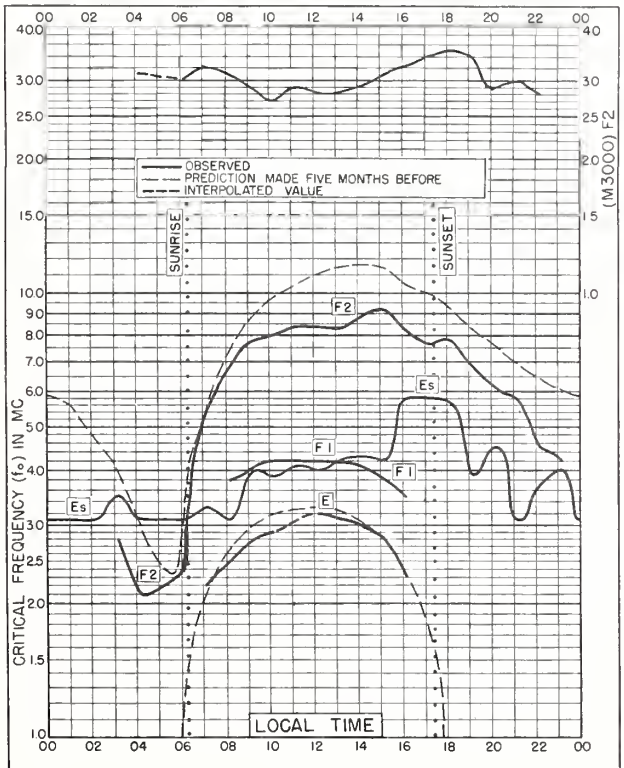


Fig. 91. KHARTOUM, SUDAN
15.6°N, 32.6°E DECEMBER 1953

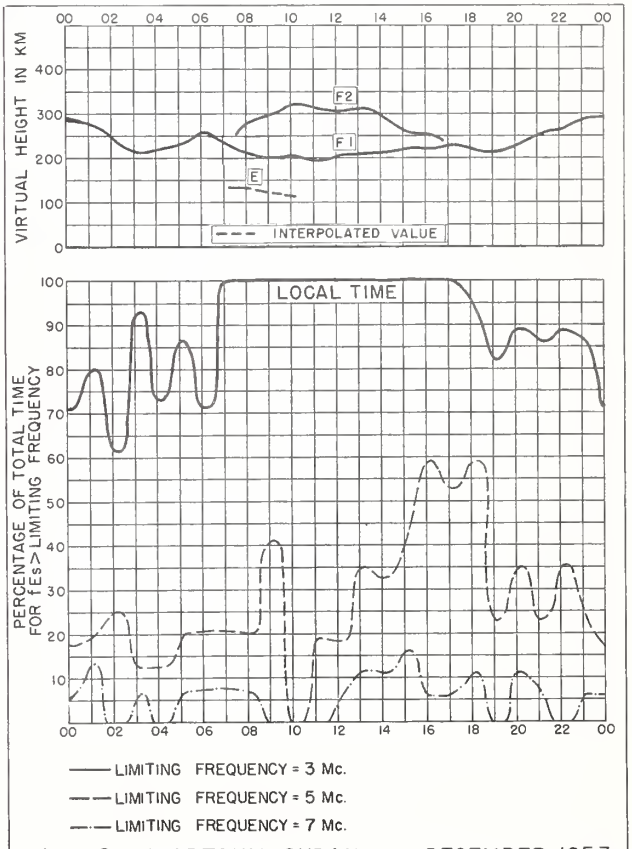


Fig. 92. KHARTOUM, SUDAN DECEMBER 1953

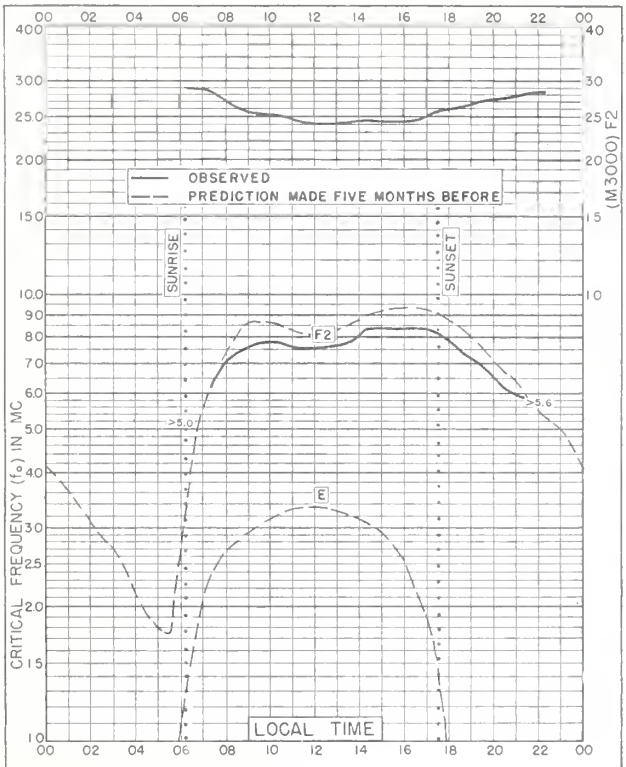


Fig. 93. MADRAS, INDIA
13.0°N, 80.2°E DECEMBER 1953

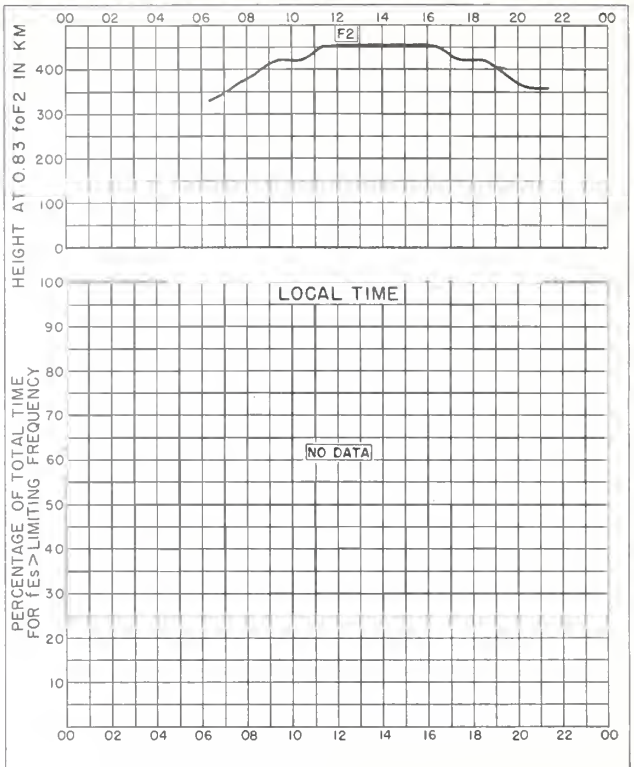


Fig. 94. MADRAS, INDIA DECEMBER 1953

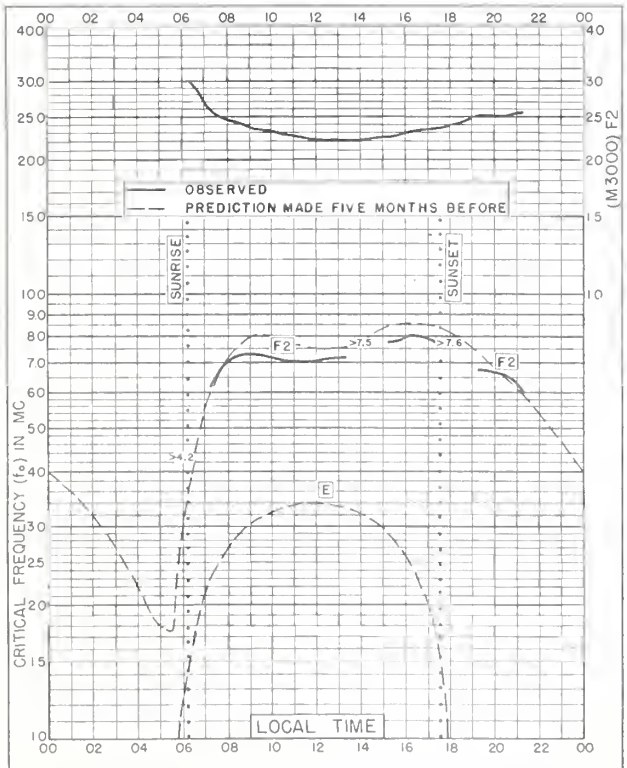


Fig. 95. TIRUCHY, INDIA
10.8°N, 78.8°E DECEMBER 1953

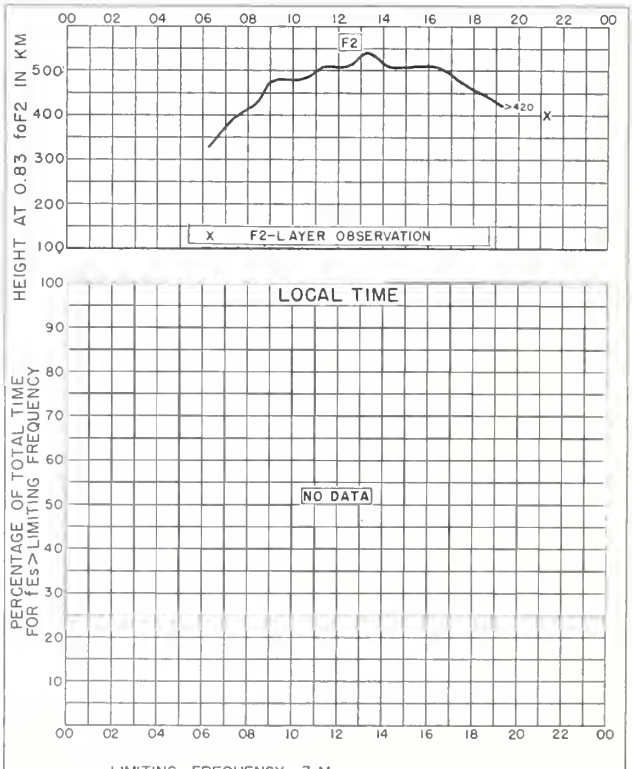


Fig. 96. TIRUCHY, INDIA DECEMBER 1953

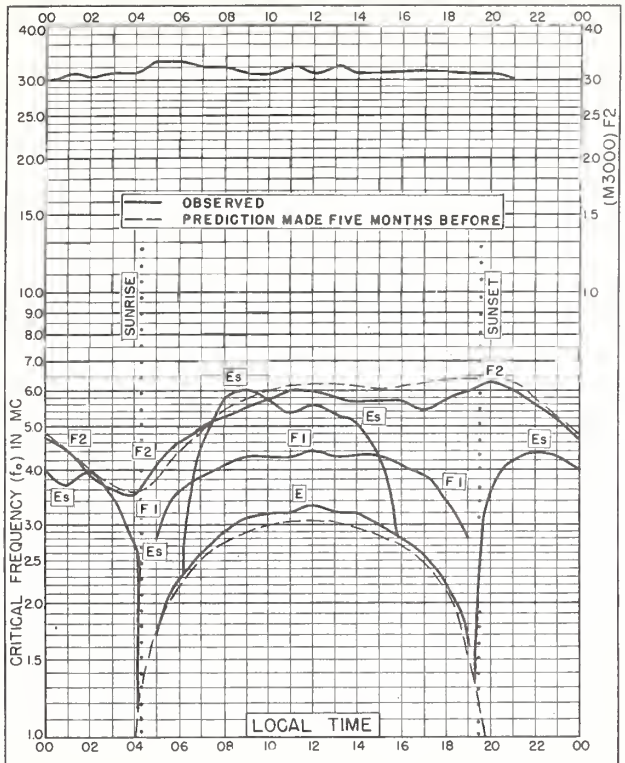
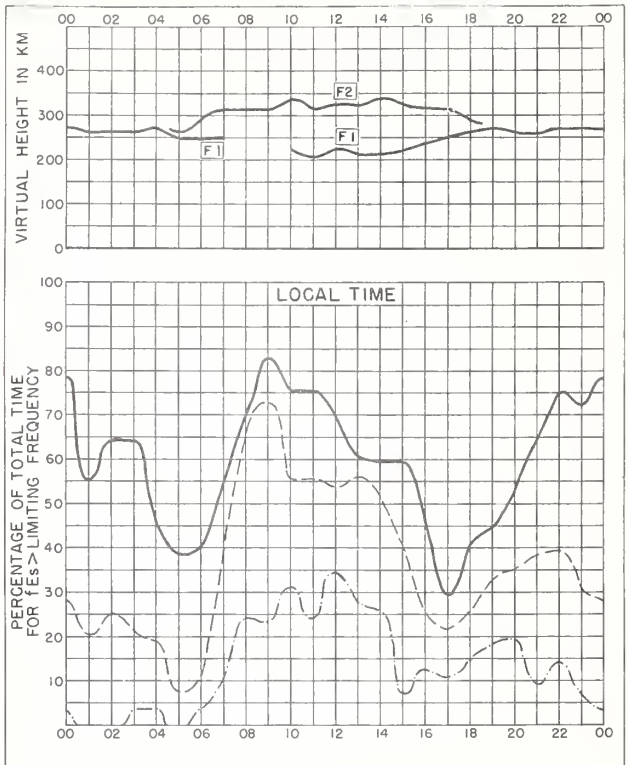


Fig. 97. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E DECEMBER 1953



DECEMBER 1953
Fig. 98. CHRISTCHURCH, NEW ZEALAND

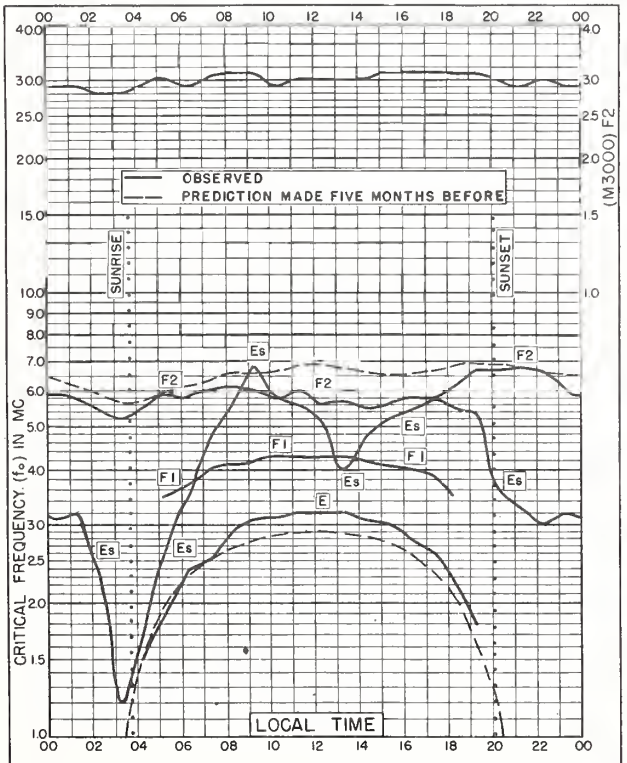


Fig. 99. FALKLAND IS.
51.7°S, 57.8°W DECEMBER 1953

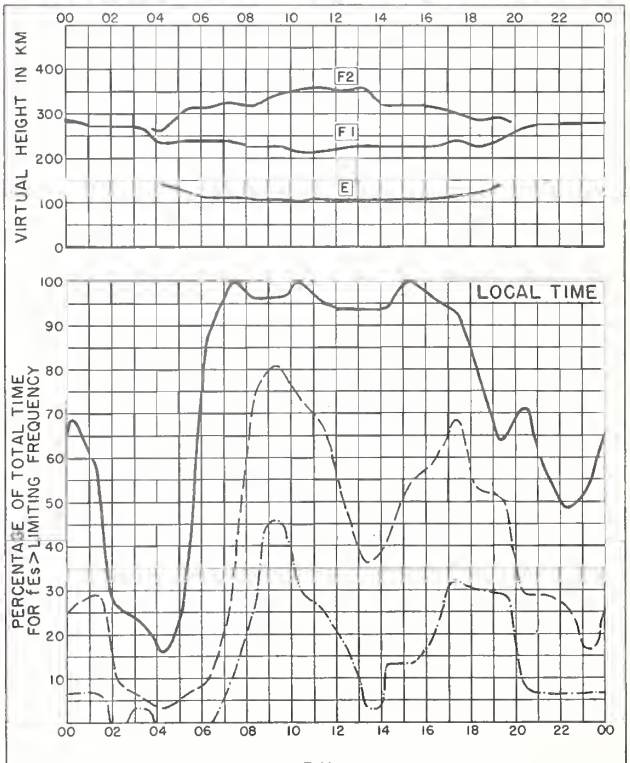


Fig. 100. FALKLAND IS. DECEMBER 1953

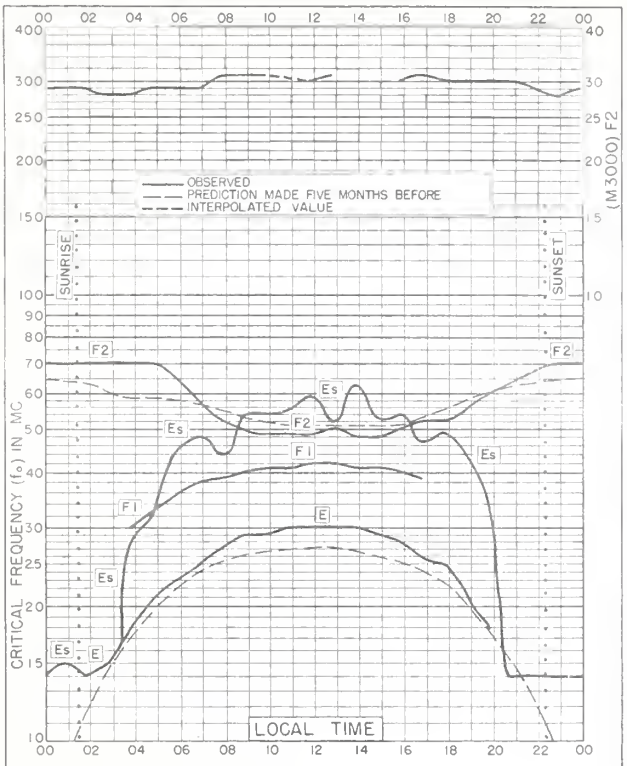


Fig. 101. PORT LOCKROY
64.8°S, 63.5°W DECEMBER 1953

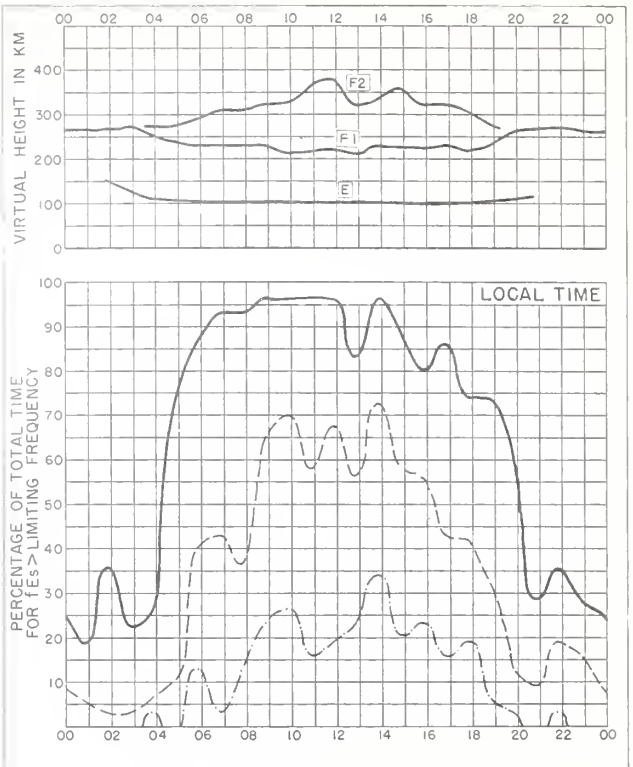


Fig. 102. PORT LOCKROY DECEMBER 1953

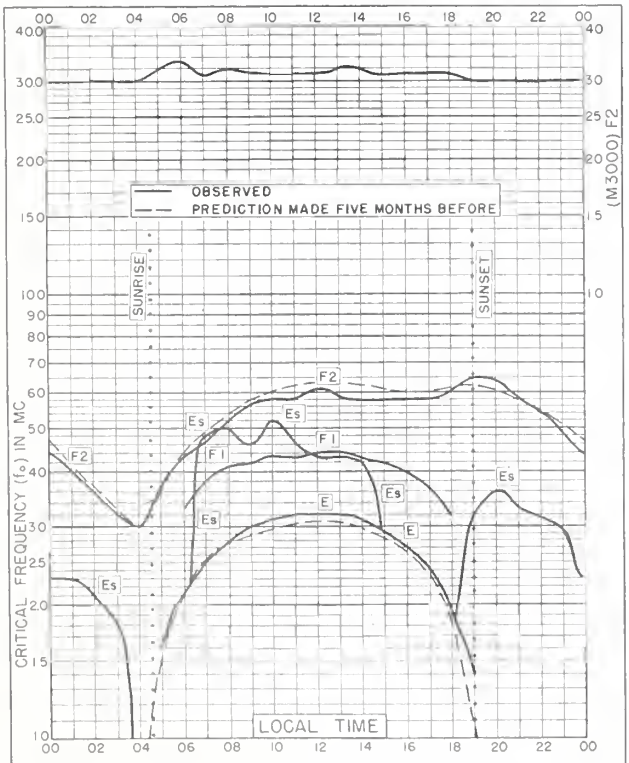


Fig. 103. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.7°E NOVEMBER 1953

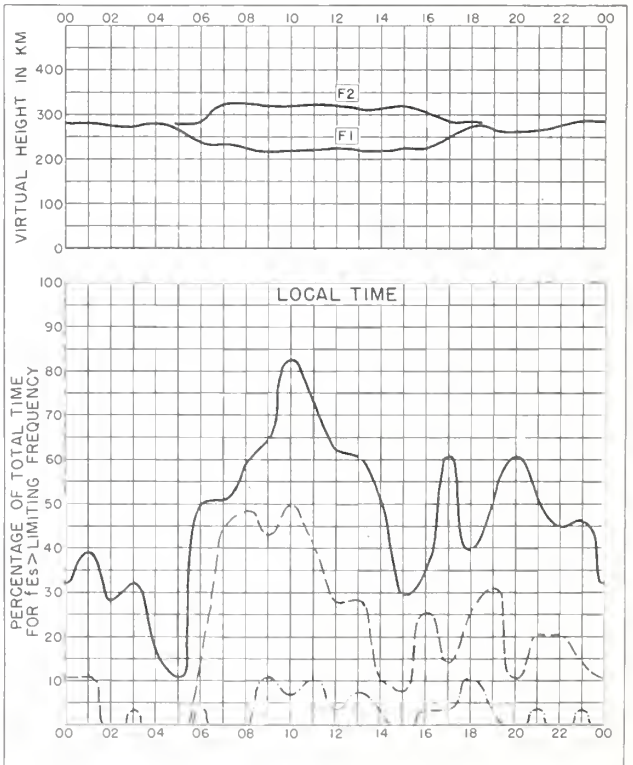


Fig. 104. CHRISTCHURCH, NEW ZEALAND NOVEMBER 1953

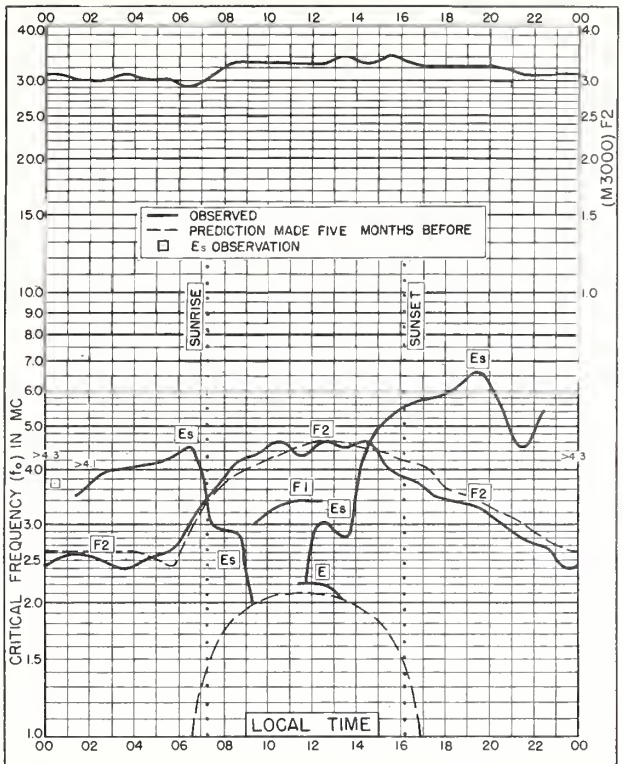


Fig. 105. GODHAVN, GREENLAND
69.2°N, 53.5°W OCTOBER 1953

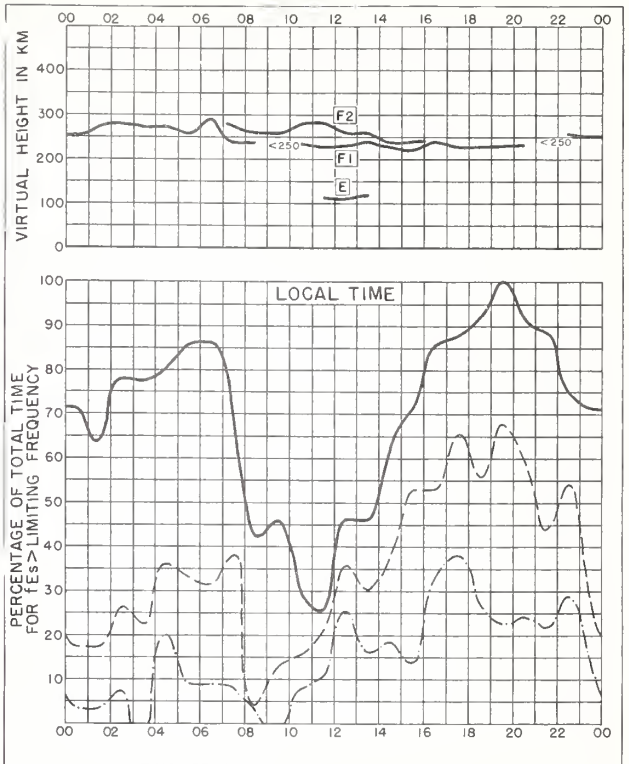


Fig. 106. GODHAVN, GREENLAND OCTOBER 1953

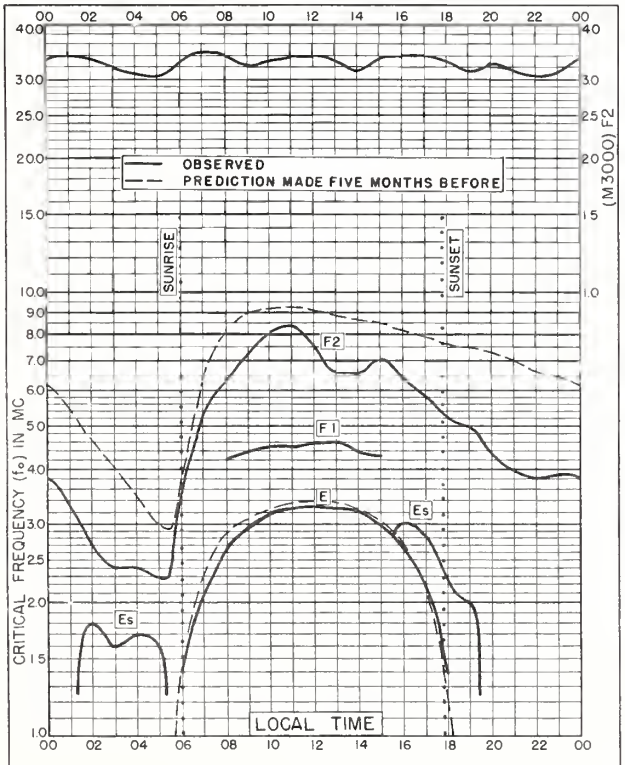


Fig. 107. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E SEPTEMBER 1953

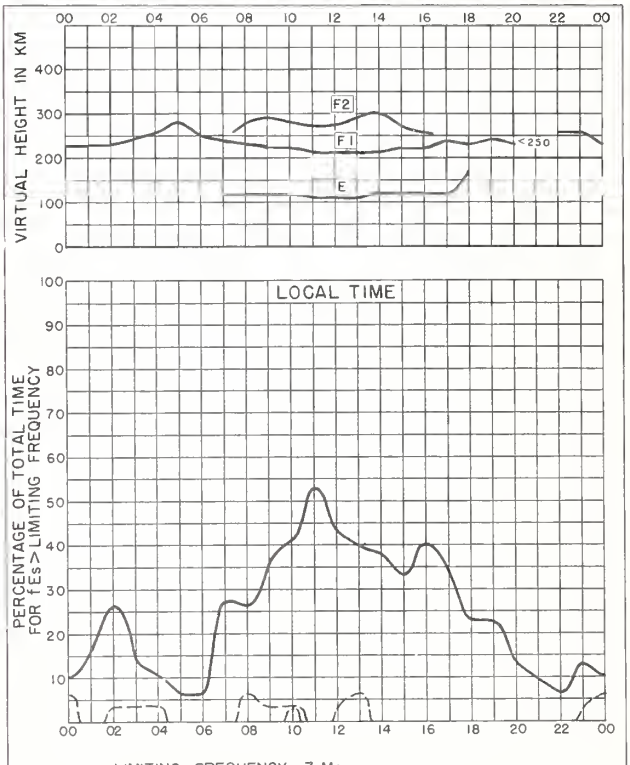


Fig. 108. TANANARIVE, MADAGASCAR SEPTEMBER 1953

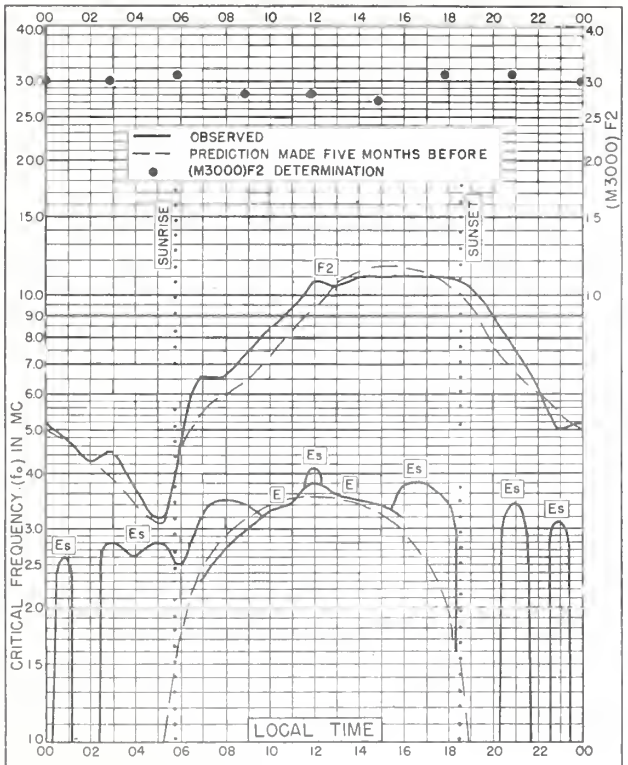


Fig. 109. CALCUTTA, INDIA
22.6°N, 88.4°E AUGUST 1953

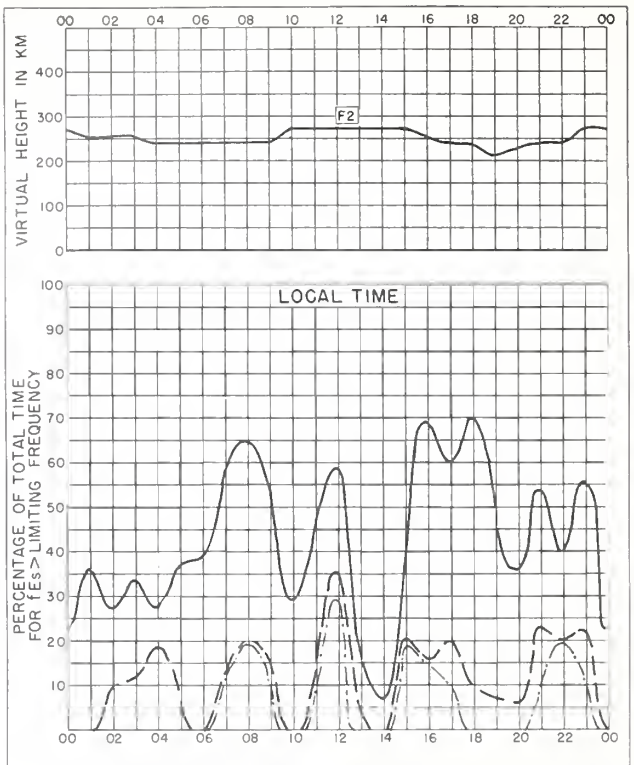


Fig. 110. CALCUTTA, INDIA AUGUST 1953

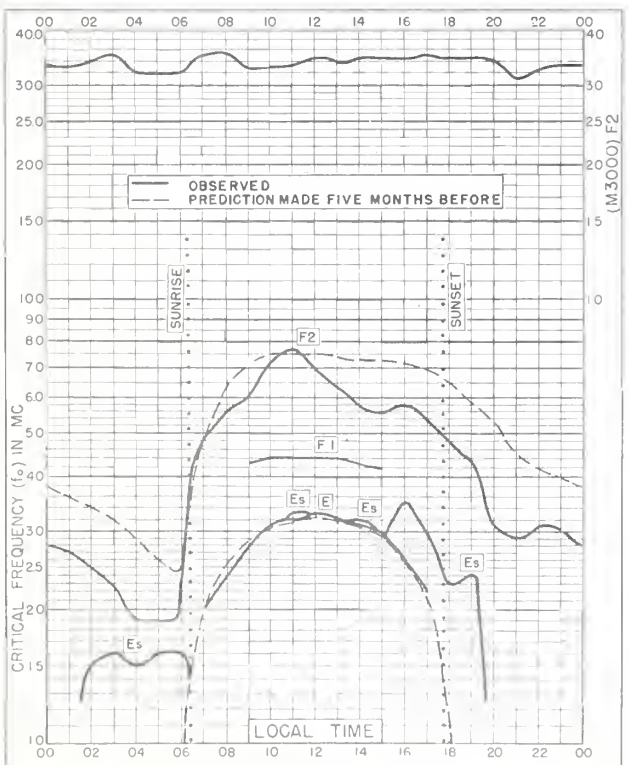
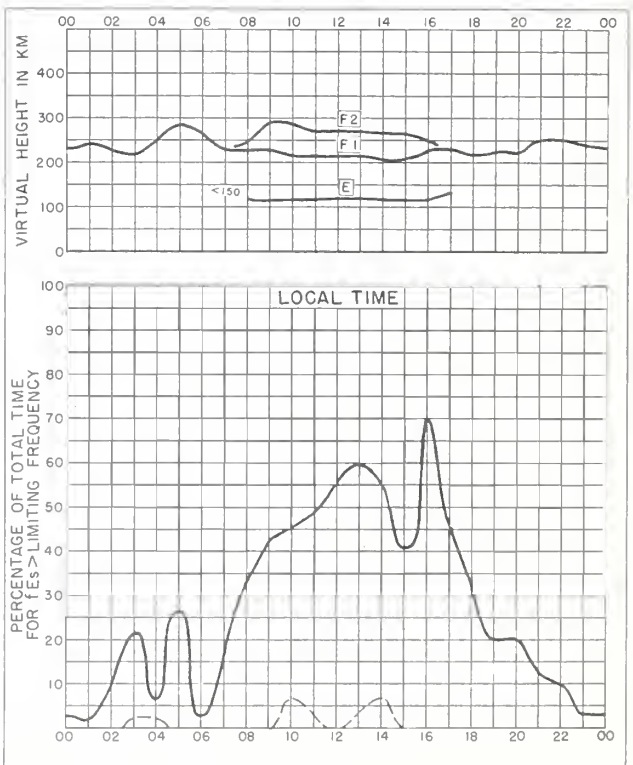


Fig. 111. TANANARIVE, MADAGASCAR
18.8°S, 47.8°E AUGUST 1953



AUGUST 1953
Fig. 112. TANANARIVE, MADAGASCAR

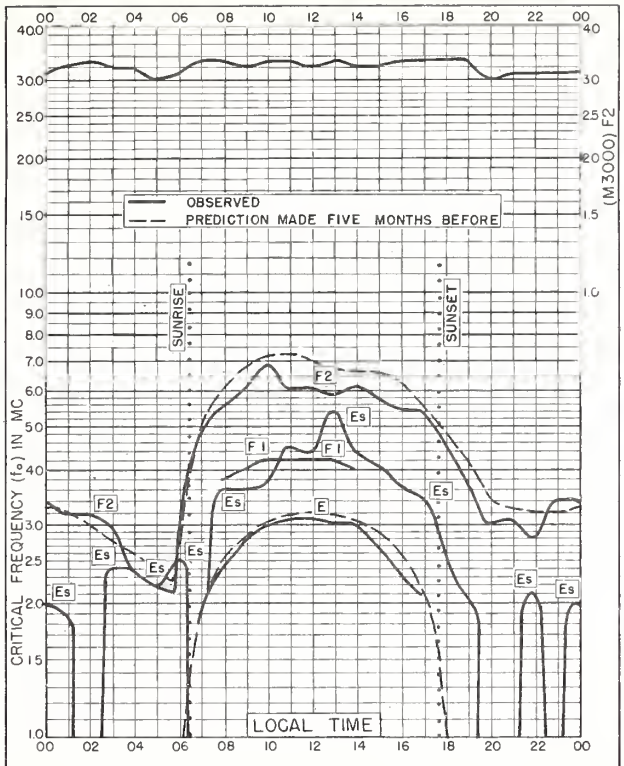


Fig. 113. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E AUGUST 1953

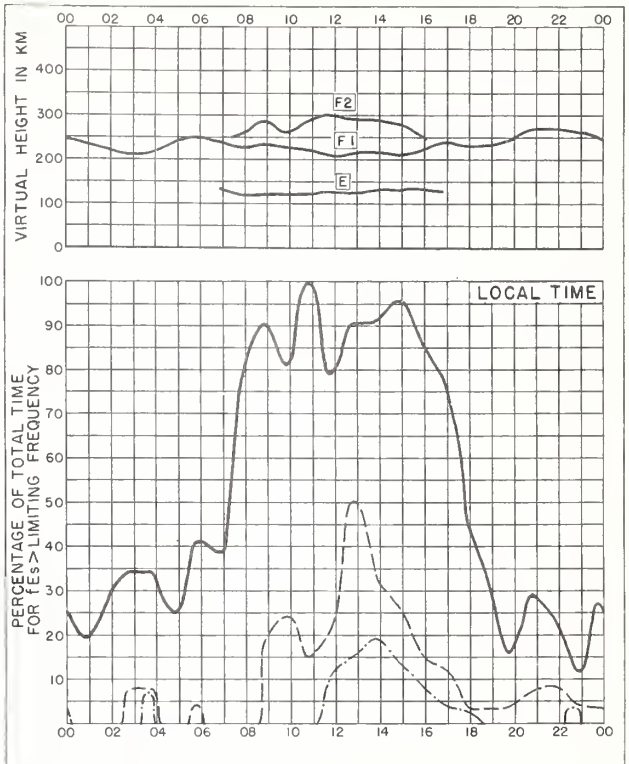


Fig. 114. TOWNSVILLE, AUSTRALIA AUGUST 1953

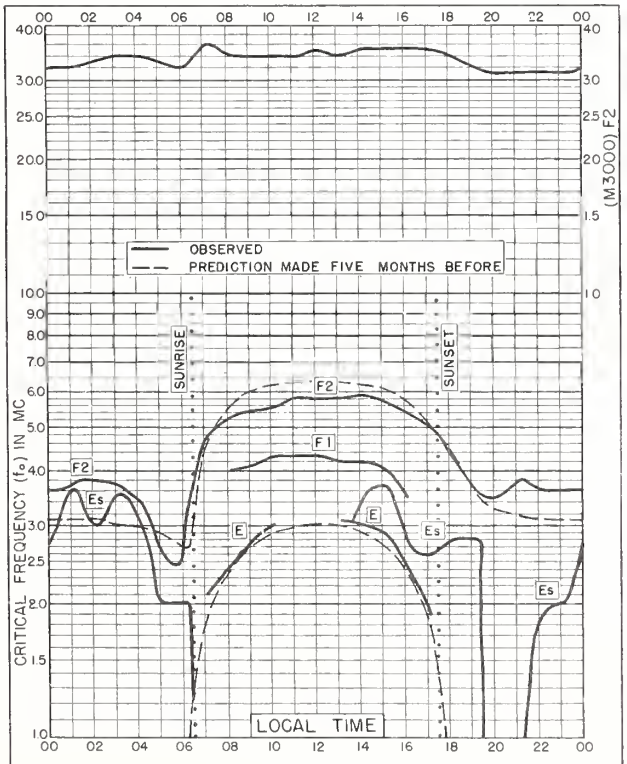


Fig. 115. BRISBANE, AUSTRALIA
27.5°S, 153.0°E AUGUST 1953

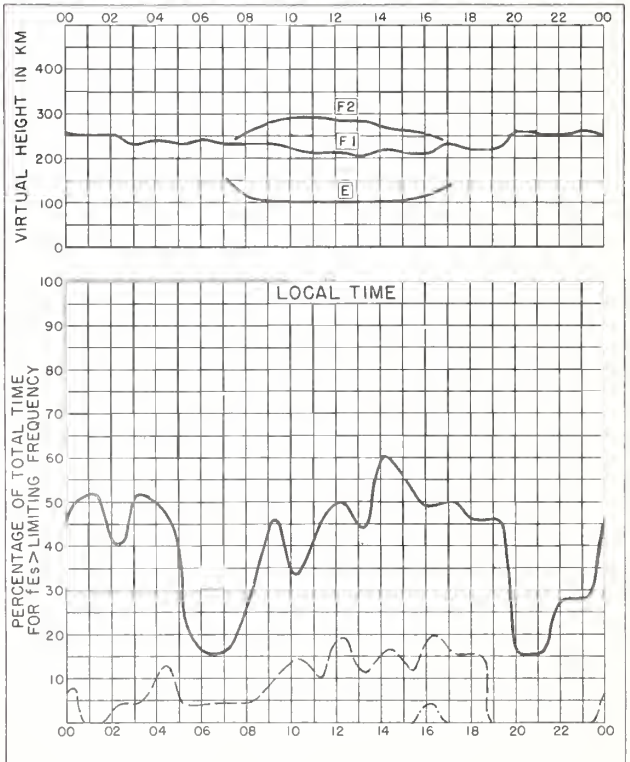


Fig. 116. BRISBANE, AUSTRALIA AUGUST 1953

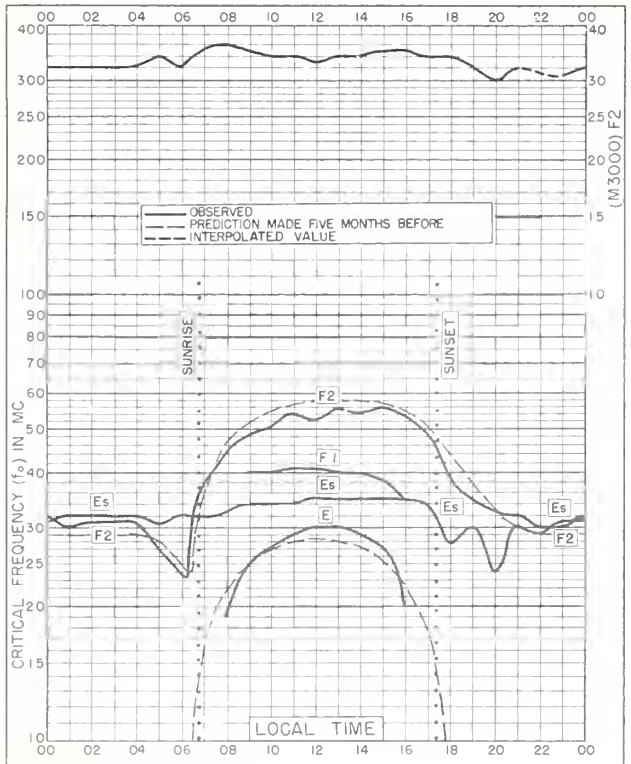


Fig. 117. CANBERRA, AUSTRALIA
35.3°S, 149.0°E AUGUST 1953

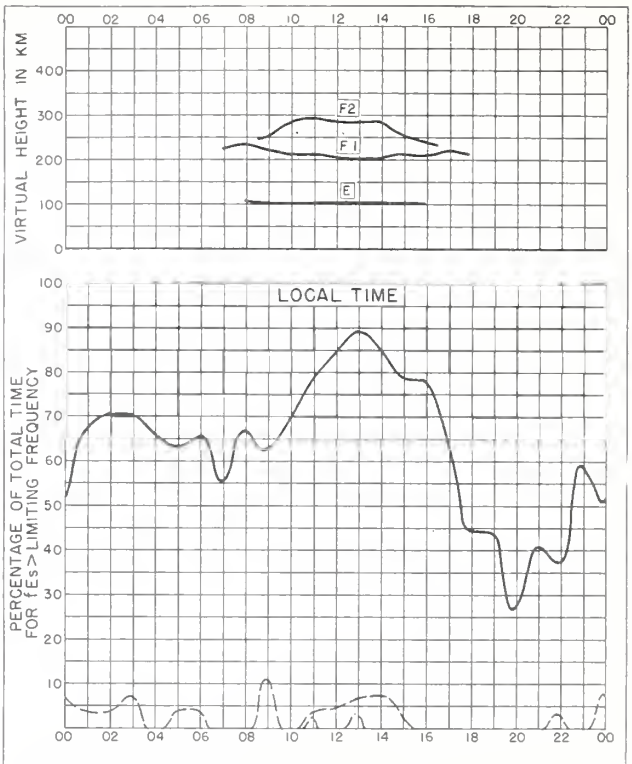


Fig. 118. CANBERRA, AUSTRALIA AUGUST 1953

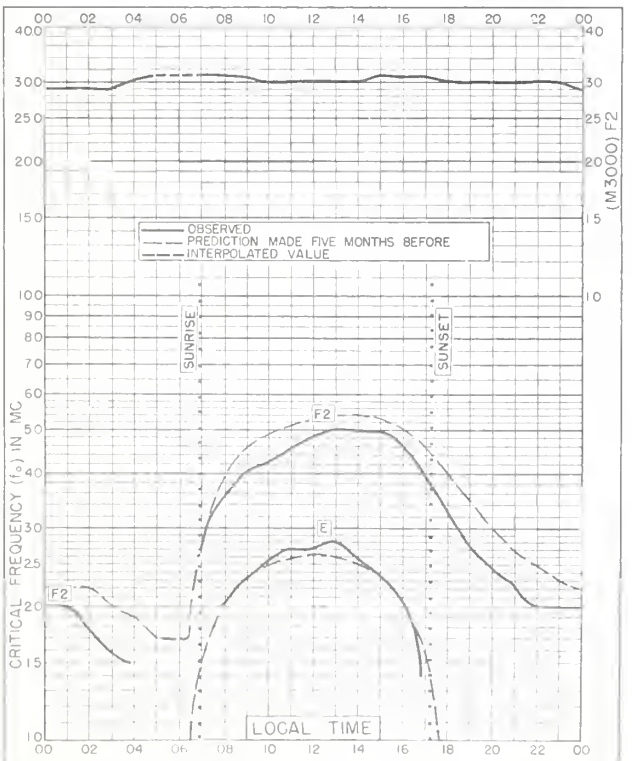


Fig. 119. HOBART, TASMANIA
42.9°S, 147.3°E AUGUST 1953

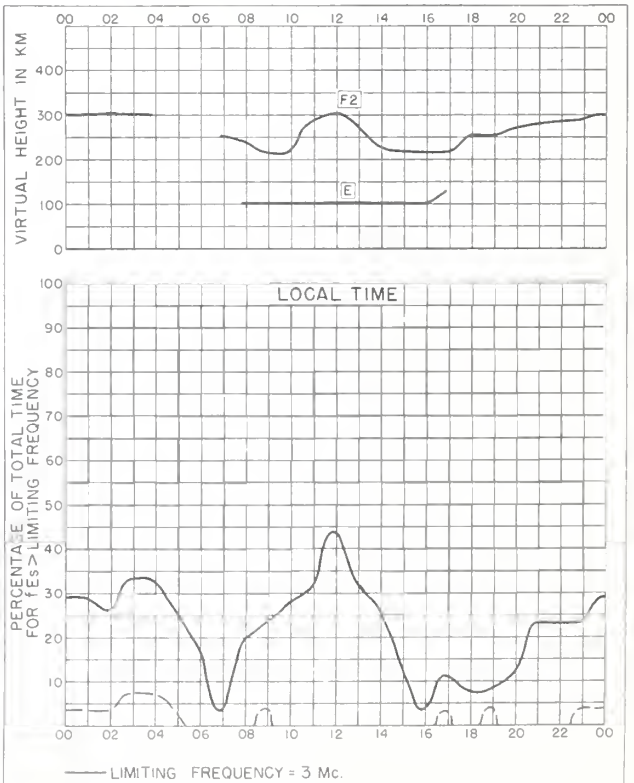


Fig. 120. HOBART, TASMANIA AUGUST 1953

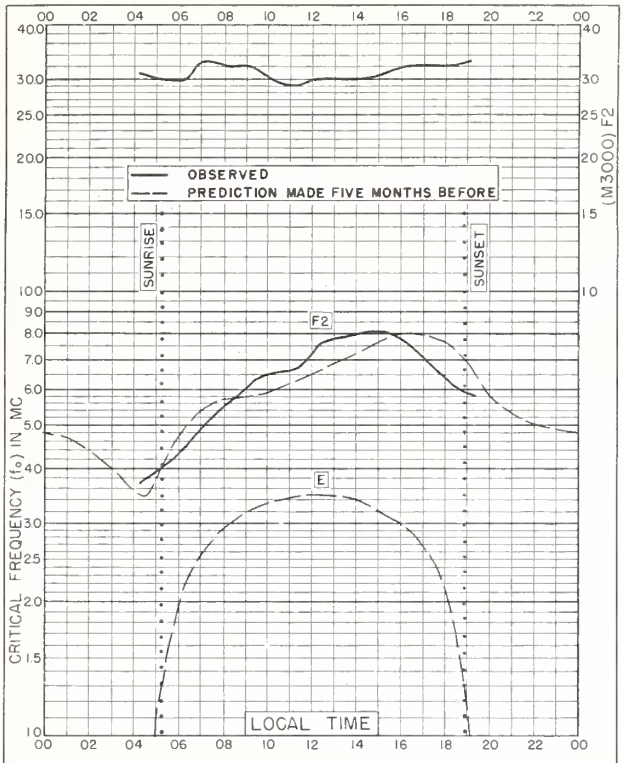


Fig. 121. DELHI, INDIA
28.6° N, 77.1° E JULY 1953

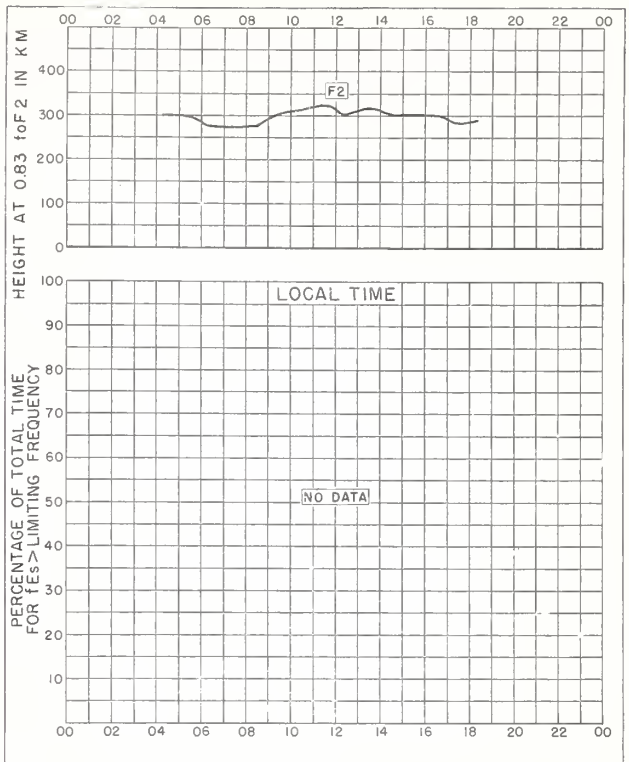


Fig. 122. DELHI, INDIA JULY 1953

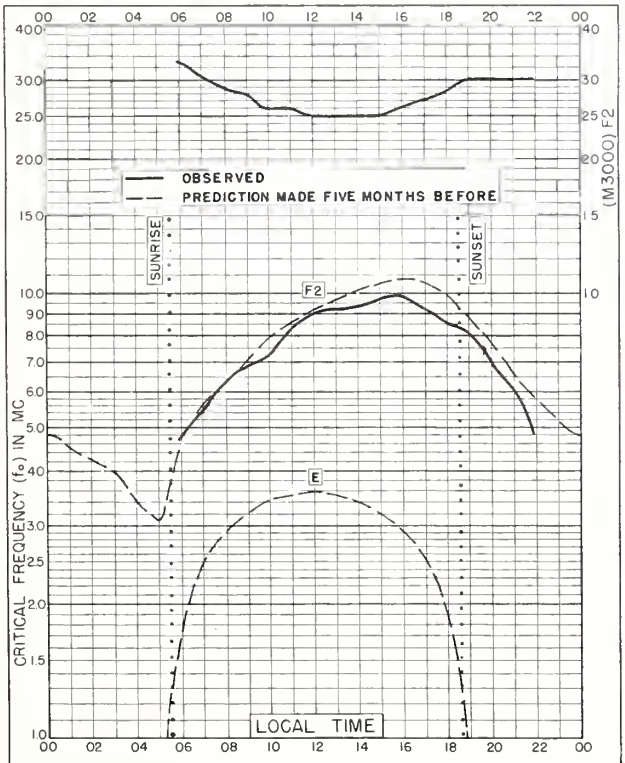


Fig. 123. BOMBAY, INDIA
19.0° N, 73.0° E JULY 1953

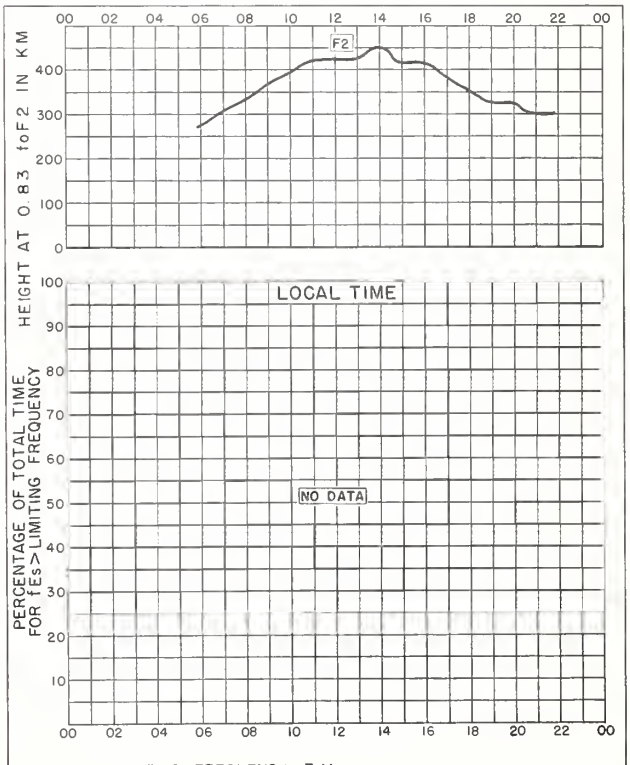


Fig. 124. BOMBAY, INDIA JULY 1953

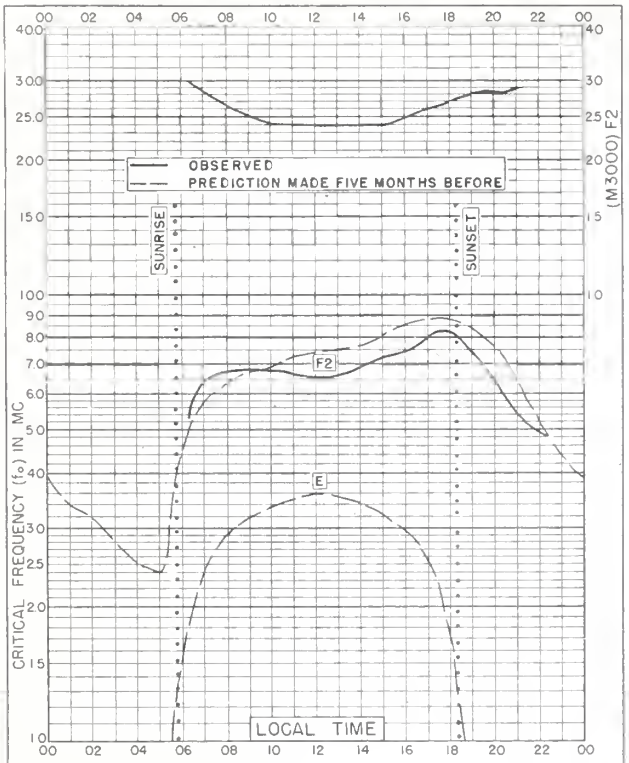


Fig. 125. MADRAS, INDIA
13.0°N, 80.2°E JULY 1953

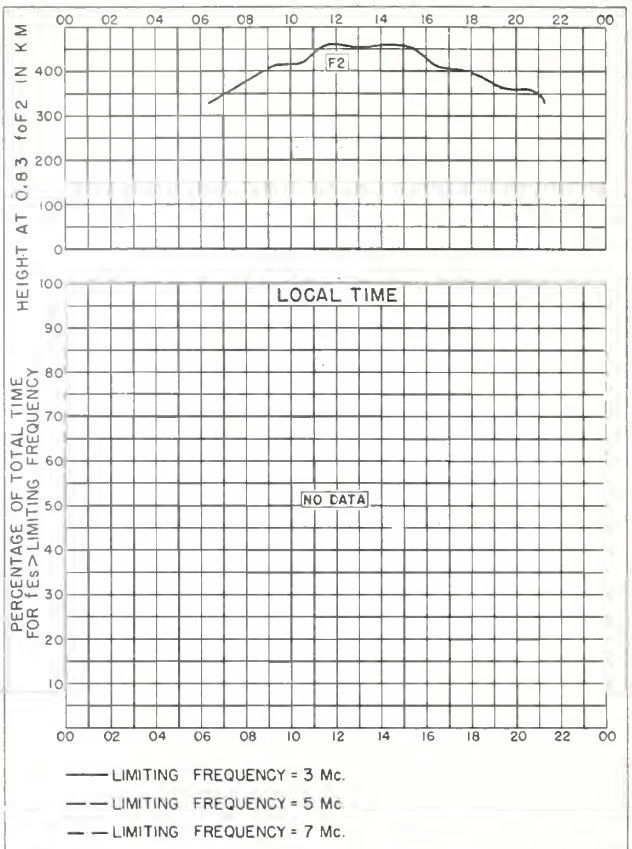


Fig. 126. MADRAS, INDIA JULY 1953

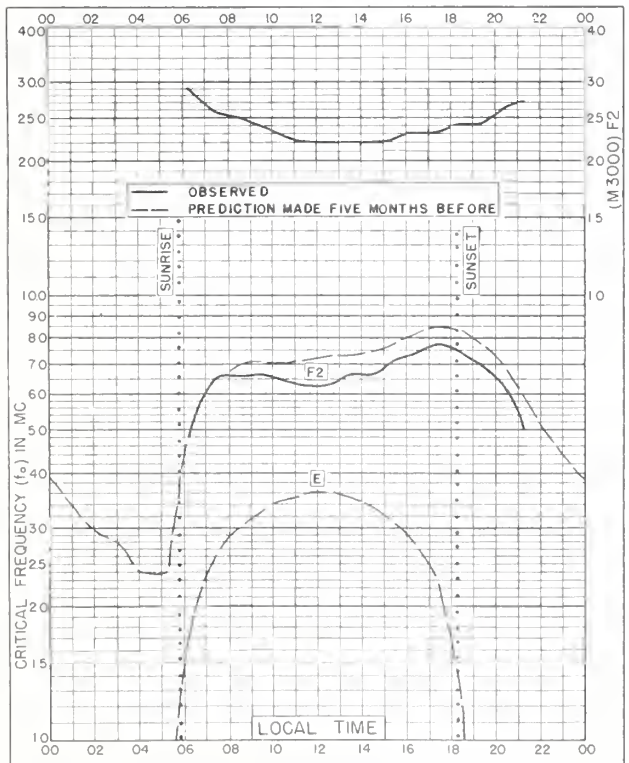


Fig. 127. TIRUCHY, INDIA
10.8°N, 78.8°E JULY 1953

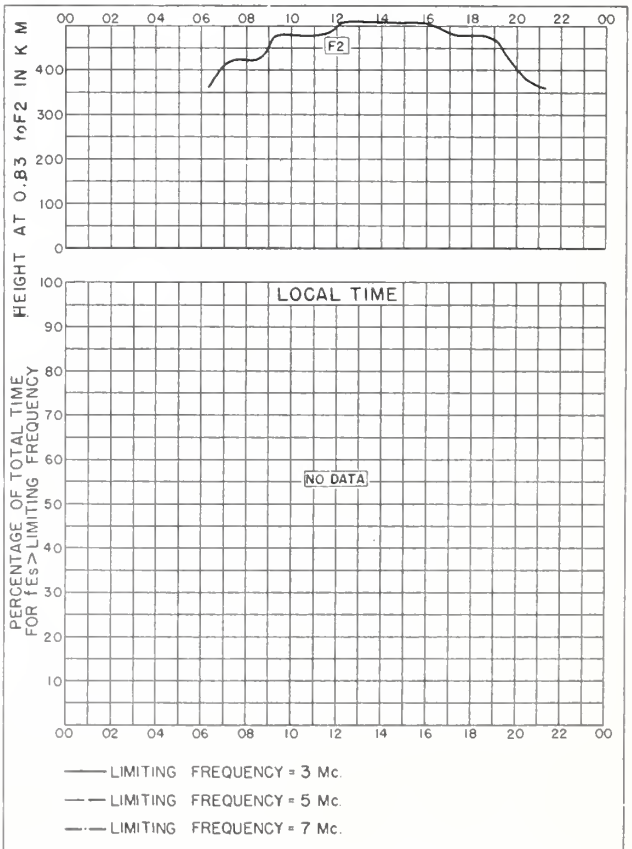


Fig. 128. TIRUCHY, INDIA JULY 1953

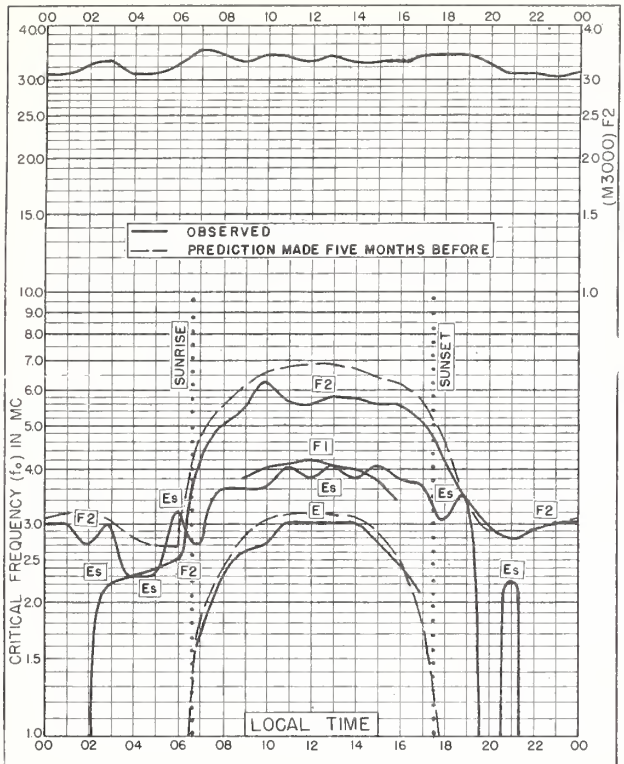


Fig. 129. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E JULY 1953

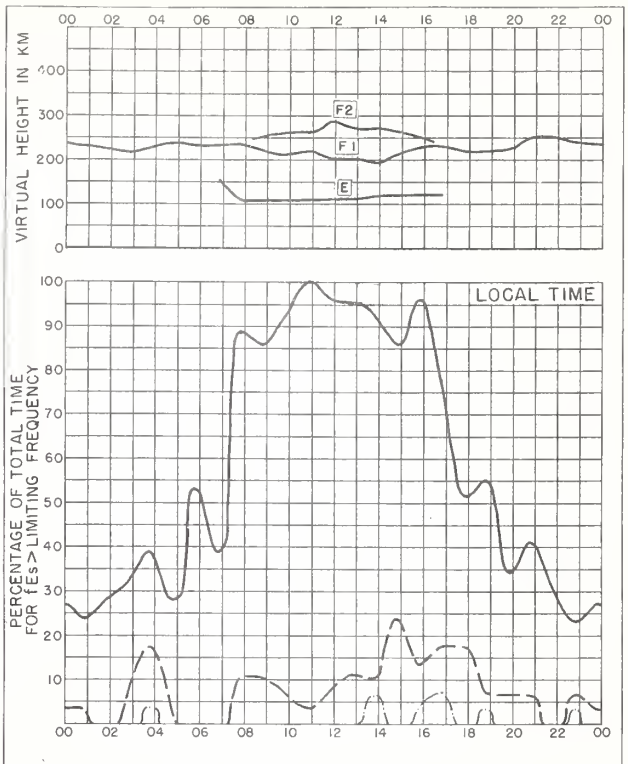


Fig. 130. TOWNSVILLE, AUSTRALIA JULY 1953

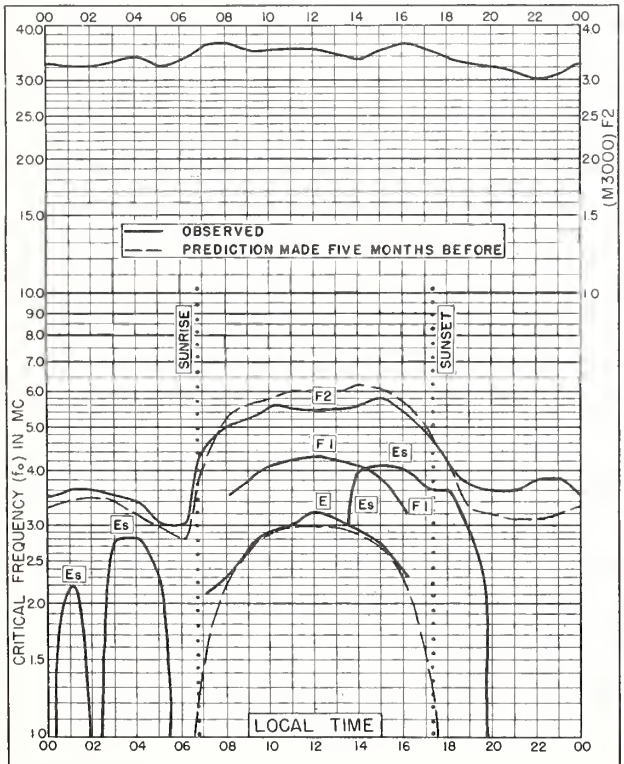


Fig. 131. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JULY 1953

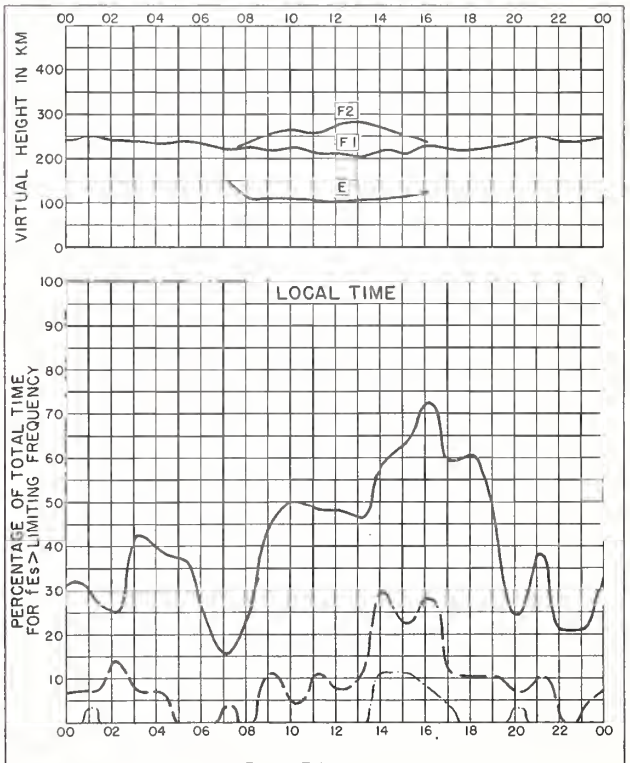


Fig. 132. BRISBANE, AUSTRALIA JULY 1953

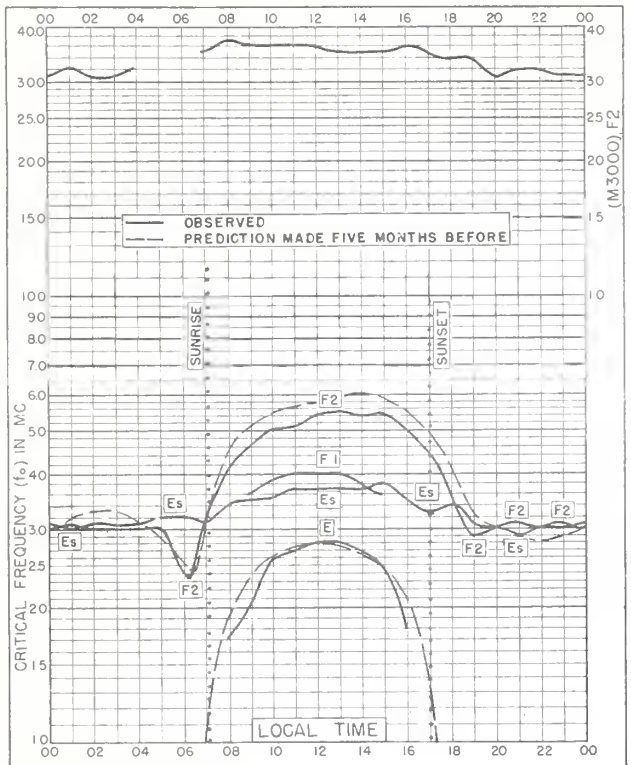


Fig. 133. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JULY 1953

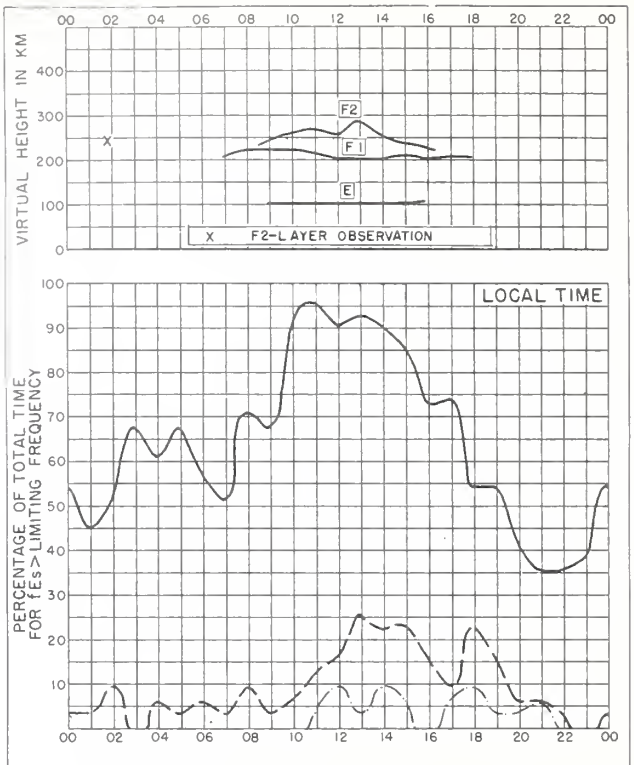


Fig. 134. CANBERRA, AUSTRALIA JULY 1953

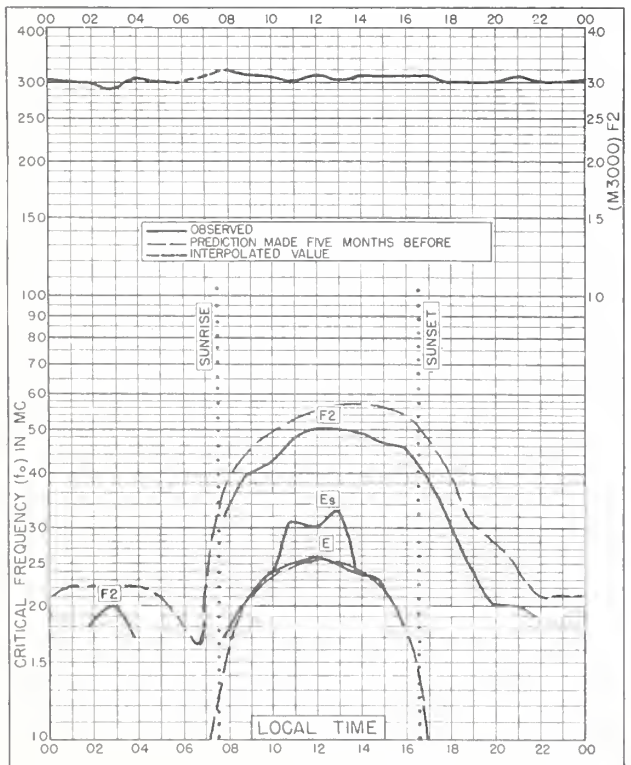


Fig. 135. HOBART, TASMANIA
42.9°S, 147.3°E JULY 1953

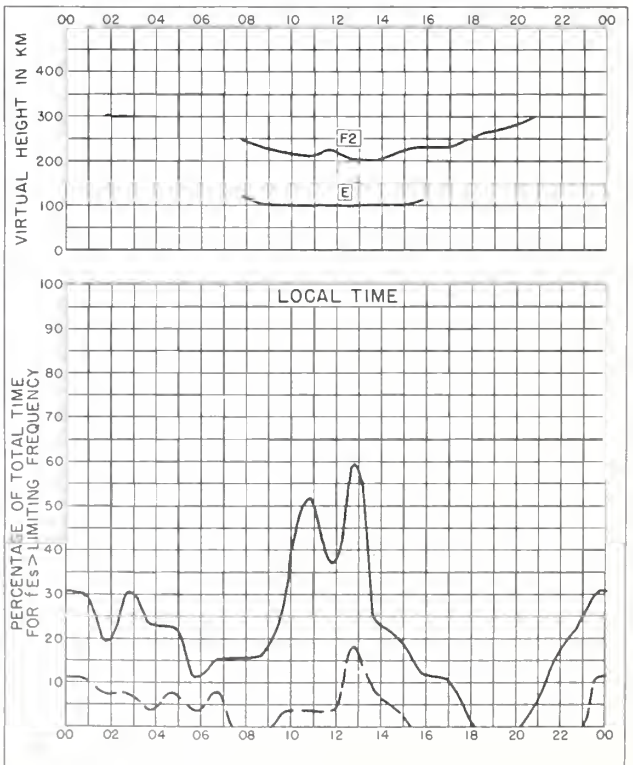


Fig. 136. HOBART, TASMANIA JULY 1953

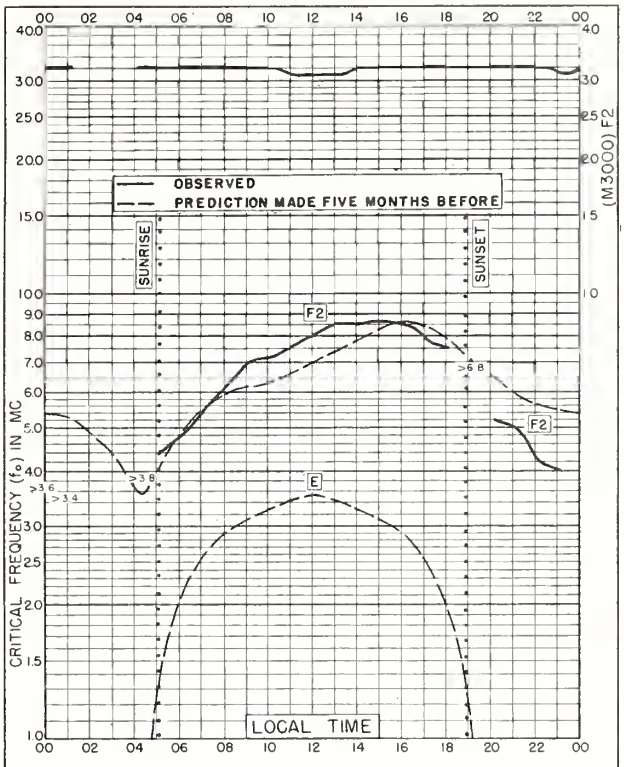


Fig. 137. DELHI, INDIA
28.6°N, 77.1°E JUNE 1953

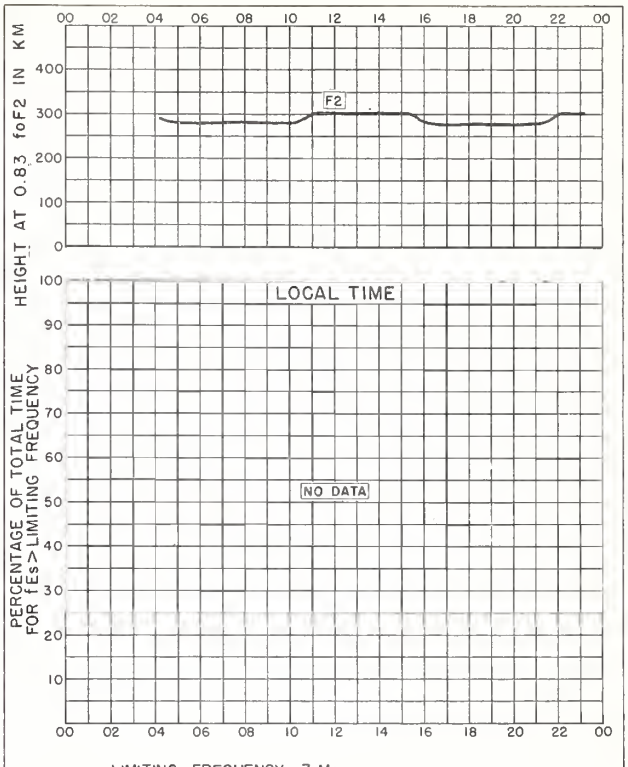


Fig. 138. DELHI, INDIA JUNE 1953

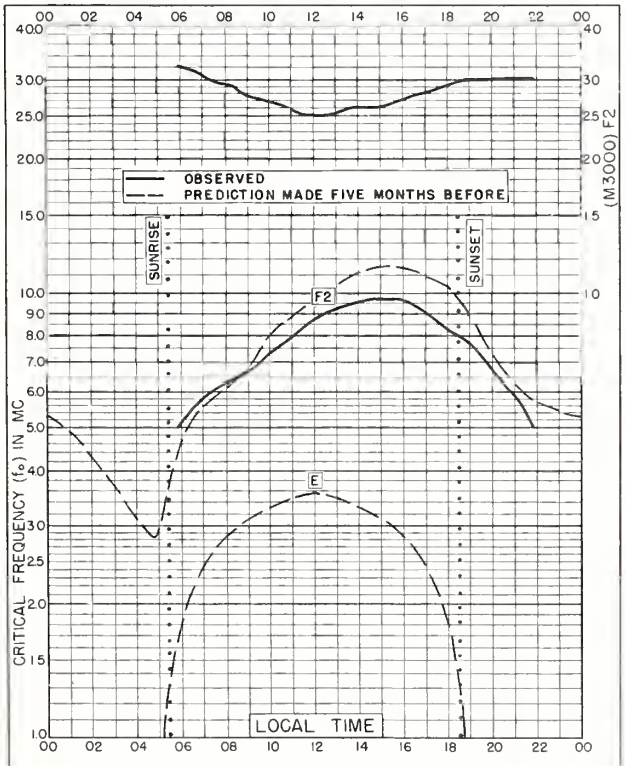


Fig. 139. BOMBAY, INDIA
19.0°N, 73.0°E JUNE 1953

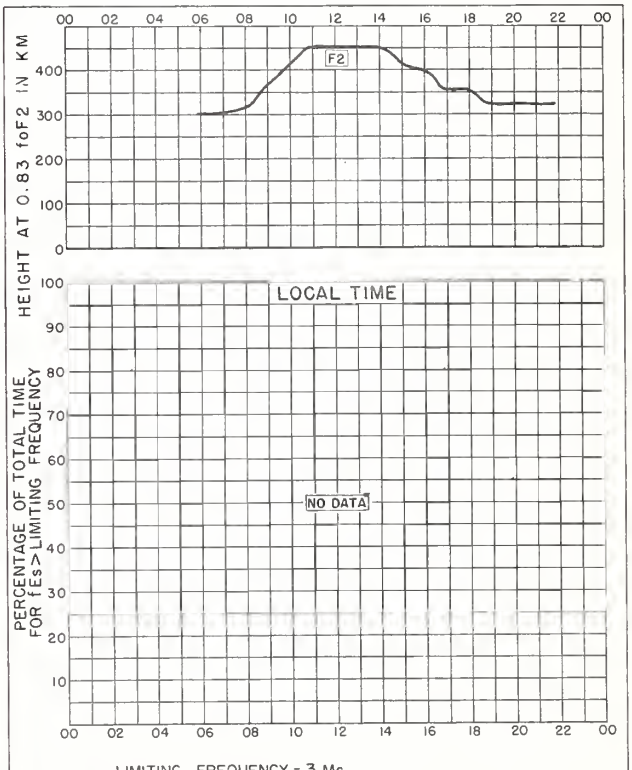


Fig. 140. BOMBAY, INDIA JUNE 1953

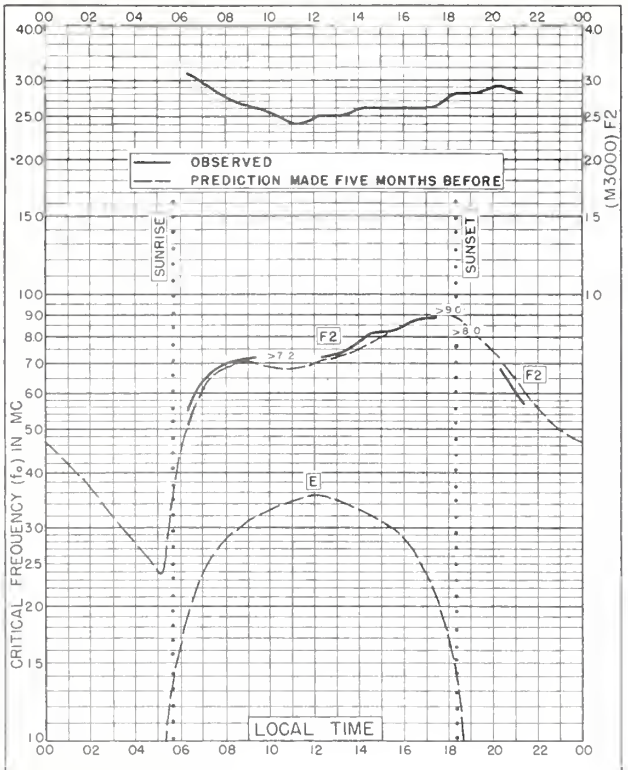


Fig. 141. MADRAS, INDIA
13.0° N, 80.2° E
JUNE 1953

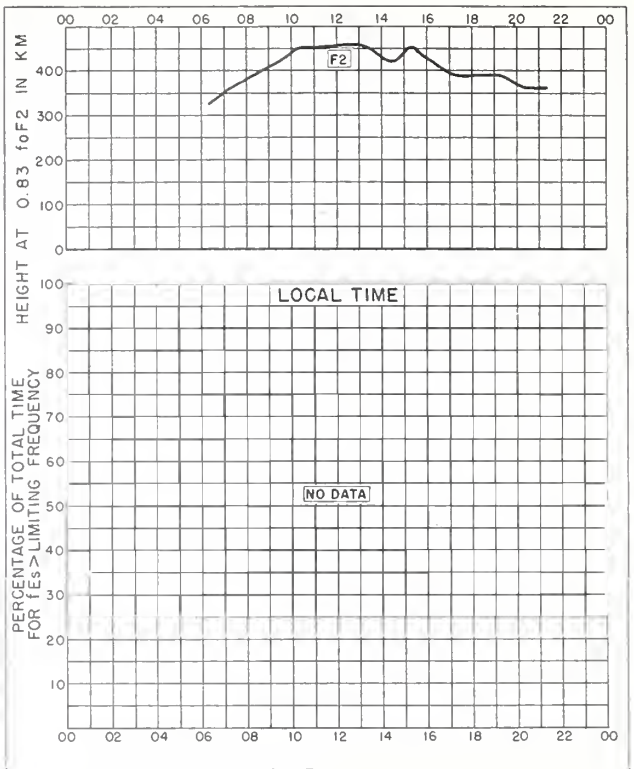


Fig. 142. MADRAS, INDIA
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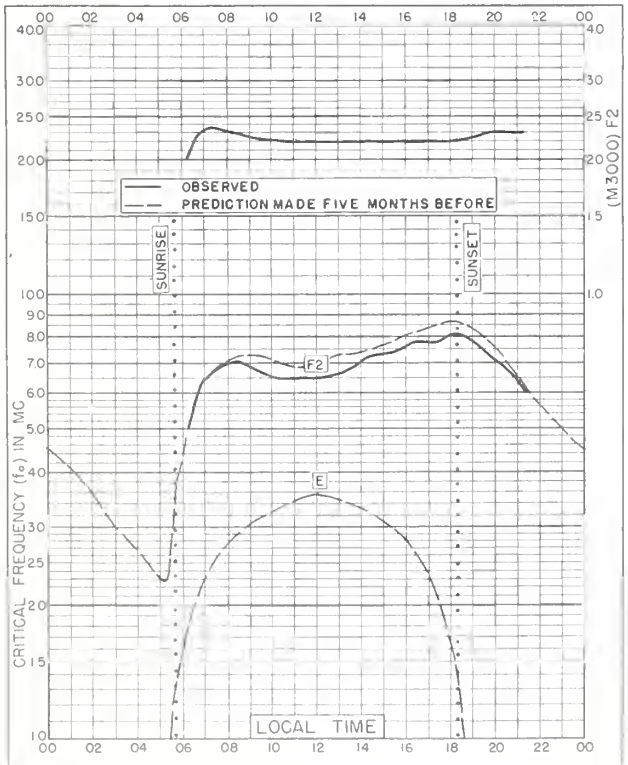

Fig. 143. TIRUCHY, INDIA
10.8° N, 78.8° E
JUNE 1953

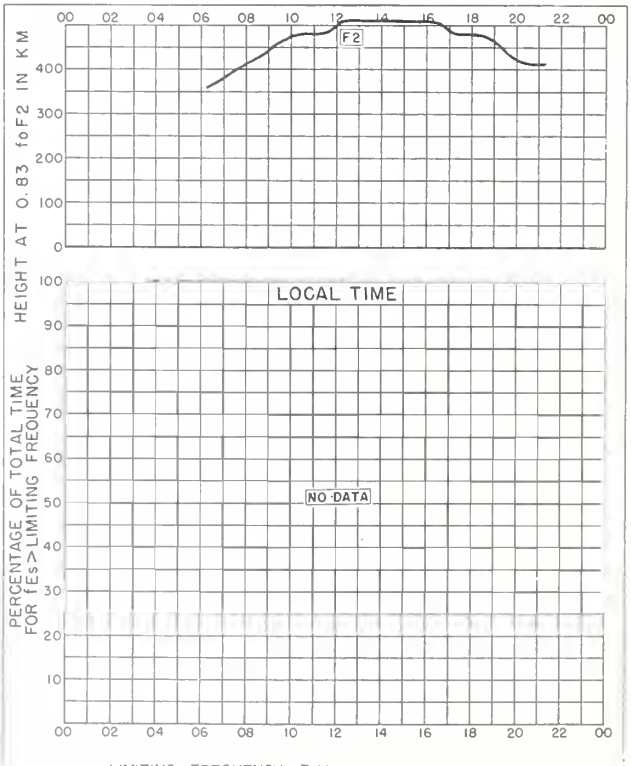

Fig. 144. TIRUCHY, INDIA
JUNE 1953

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